```
=> d que l31
L3        13829 SEA FILE=REGISTRY ABB=ON  PLU=ON  (MN(L)(B OR MG OR AL OR
                SI OR P OR SC OR TI OR V OR CR OR FE OR CO OR ZN OR GA OR
                SR OR Y OR ZR OR NB OR RU OR RH OR PD OR AG OR NI OR CU OR
                IN OR SN OR SB OR BA OR CE OR HF OR TA OR RE OR OS OR IR
                OR PT OR  AU OR BI)(L)O)/ELS(L)3-4/ELC.SUB
L7        13914 SEA FILE=HCAPLUS ABB=ON  PLU=ON  DOPANTS+PFT,NT,OLD,NEW/CT

L8        24584 SEA FILE=HCAPLUS ABB=ON  PLU=ON  DOPING+PFT,NT,OLD,NEW/CT
L11       35777 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "BATTERY ELECTRODES"+PFT,N
                T,OLD,NEW/CT
L13       11218 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (MANGANESE OR MN)(2A)DOP?

L17       11085 SEA FILE=REGISTRY ABB=ON  PLU=ON  L3 NOT 1-100/LI
L18       31211 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L17
L19        1690 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L18 AND ((L7 OR L8) OR
                DOPING# OR DOPANT#)
L20          26 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 AND L11
L21         510 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 AND L13
L22          36 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L21 AND ELECTROCHEM?/SC,SX

L23          54 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L20 OR L22
L24          29 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L23 AND (1840-2001)/PRY,AY
                ,PY
L25         158 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 AND ELECTROCHEM?/SC,SX

L26          94 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L25 AND (1840-2001)/PRY,AY
                ,PY
L29          81 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L26 AND (BATTER? OR
                ELECTROD? OR ANOD? OR CATHOD?)
L30          44 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L29 AND ELECTROLYT?
L31          62 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L24 OR L30


=> d l31 1-62 ibib ed abs hitstr hitind

L31  ANSWER 1 OF 62  HCAPLUS  COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER:         2007:521158  HCAPLUS  Full-text
DOCUMENT NUMBER:          146:465235
TITLE:                    Novel material for fuel cells and its manufacture
                          and use
INVENTOR(S):              Hu, Jiandong; Tosto, Sebastiano
PATENT ASSIGNEE(S):       ENEA-Ente per le Nuove Tecnologie, L'Energia e
                          l'Ambiente, Italy
SOURCE:                   Ital. Appl., 45pp.
                          CODEN: ITXXCZ
DOCUMENT TYPE:            Patent
LANGUAGE:                 Italian
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.           KIND   DATE        APPLICATION NO.         DATE
     ---------------      ----   --------    --------------------    --------
     IT 2001RM0596         A1    20030403    IT 2001-RM596           20011003
                                                     <--
PRIORITY APPLN. INFO.:                       IT 2001-RM596           20011003
                                                     <--

ED   Entered STN:  15 May 2007
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AB The fuel cell uses cerium oxide doped with NiAl, Co, Ni, Al, Fe, Nb, Ca, K, or Na ass the **electrolyte**, where the cerium oxide contains 0.1-40 weight%, preferably 0.1-20 weight%, of the **dopant**.

IT **935527-71-2**, Gallium lanthanum manganese oxide (Ga0.2La0.8MnO3)
(**cathode**; novel material for fuel cells and its manufacture and use)

RN 935527-71-2 HCAPLUS

CN Gallium lanthanum manganese oxide (Ga0.2La0.8MnO3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ga	0.2	7440-55-3
Mn	1	7439-96-5
La	0.8	7439-91-0

IC ICM H01M

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST fuel cell doped **electrolyte** cerium oxide

IT Fuel cell **electrolytes**
(novel material for fuel cells and its manufacture and use)

IT 1314-23-4, Zirconium oxide, uses 136854-58-5, Cerium gadolinium oxide (Ce0.8Gd0.2O2)
(**anode**; novel material for fuel cells and its manufacture and use)

IT **935527-71-2**, Gallium lanthanum manganese oxide (Ga0.2La0.8MnO3)
(**cathode**; novel material for fuel cells and its manufacture and use)

L31 ANSWER 2 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:1165362 HCAPLUS Full-text

DOCUMENT NUMBER: 143:443486

TITLE: Preparation of nanostructured and layered lithium manganese oxides and their use as cathode material in lithium secondary batteries

INVENTOR(S): Singhal, Amit; Skandan, Ganesh

PATENT ASSIGNEE(S): Nanopowder Enterprises Inc, USA

SOURCE: U.S., 5 pp.
CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
US 6960335	B1	20051101	US 2002-251306 <--		20020920
PRIORITY APPLN. INFO.:			US 2001-323442P <--	P	20010920

ED Entered STN: 01 Nov 2005

AB Nanostructured and layered lithium manganese oxide powders are produced having the chemical formula, LixMn1-yMyO2, with 0.5 < x <1.33, and 0 ≤ y ≤ 0.5 and having an average primary particle diameter of 5-300 nm, preferably 5-100 nm, and M is at least one cation **dopant**. M can be Al, Co, Ga, V, or Ni. The powders can be formed into active cathode materials in Li-ion and Li

rechargeable batteries. The cathode material contains a binder, such as polyvinylidene fluoride, polyethylene oxide, polyethylene, polypropylene, PTFE, polyacrylates, or their mixts. or copolymers. The cathode material contains conductive particles, especially carbon.

IT **868657-30-1P**, Aluminum manganese sodium oxide (Al0.1Mn0.9Na0.9O2) **868657-33-4P**, Aluminum manganese sodium oxide (Al0.25Mn0.75Na0.9O2)
(preparation of nanostructured and layered lithium manganese oxides and their use as cathode material in lithium secondary batteries)

RN 868657-30-1 HCAPLUS

CN Aluminum manganese sodium oxide (Al0.1Mn0.9Na0.9O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Na	0.9	7440-23-5
Mn	0.9	7439-96-5
Al	0.1	7429-90-5

RN 868657-33-4 HCAPLUS

CN Aluminum manganese sodium oxide (Al0.25Mn0.75Na0.9O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Na	0.9	7440-23-5
Mn	0.75	7439-96-5
Al	0.25	7429-90-5

IC ICM C01G045-02
ICS C01D001-02; H01M004-50; H01M004-58

INCL 423599000; 423594150; 429224000; 429231950

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT **Battery cathodes**
(preparation of nanostructured and layered lithium manganese oxides and their use as cathode material in lithium secondary batteries)

IT **868657-30-1P**, Aluminum manganese sodium oxide (Al0.1Mn0.9Na0.9O2) **868657-33-4P**, Aluminum manganese sodium oxide (Al0.25Mn0.75Na0.9O2)
(preparation of nanostructured and layered lithium manganese oxides and their use as cathode material in lithium secondary batteries)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 3 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:511644 HCAPLUS Full-text

DOCUMENT NUMBER: 139:71602

TITLE: Additive for alkaline **batteries**

INVENTOR(S): Christian, Paul A.; Davis, Stuart M.; Mezini, Tatjana

PATENT ASSIGNEE(S): The Gillette Company, USA

SOURCE: PCT Int. Appl., 26 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003054988	A2	20030703	WO 2002-US39649 <--	20021211
WO 2003054988	A3	20040722		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2003134199	A1	20030717	US 2001-22272 <--	20011220
US 6740451	B2	20040525		
AU 2002351363	A1	20030709	AU 2002-351363 <--	20021211
EP 1466373	A2	20041013	EP 2002-787020 <--	20021211
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
CN 1630957	A	20050622	CN 2002-825471 <--	20021211
JP 2006502528	T	20060119	JP 2003-555606 <--	20021211
BR 2002015087	A	20061128	BR 2002-15087 <--	20021211
PRIORITY APPLN. INFO.:			US 2001-22272 <--	A1 20011220
			WO 2002-US39649	W 20021211

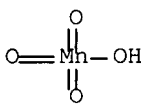
ED Entered STN: 04 Jul 2003

AB An alkaline **battery** includes a **cathode** including Ni oxyhydroxide and a gold salt, an **anode** including zinc, a separator between the **cathode** and the **anode**, and an alkaline **electrolyte**. The Ni oxyhydroxide includes β- and γ-Ni oxyhydroxide. Gold salt is selected from Au(III) oxide, Au(III) hydroxide, and Au(III) acetate.

IT **7783-98-4**, Silver permanganate **7787-36-2**, Barium permanganate
(additive for alkaline **batteries**)

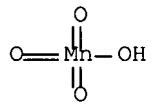
RN 7783-98-4 HCAPLUS

CN Permanganic acid (HMnO4), silver(1+) salt (8CI, 9CI) (CA INDEX NAME)



● Ag(I)

RN 7787-36-2 HCAPLUS
CN Permanganic acid (HMnO4), barium salt (8CI, 9CI) (CA INDEX NAME)



●1/2 Ba

IC ICM H01M004-52
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST **battery** alk **electrode** additive
IT **Battery cathodes**
Primary **batteries**
(additive for alkaline **batteries**)
IT Primary **batteries**
(button-type; additive for alkaline **batteries**)
IT 11113-74-9, Nickel hydroxide
(additive for alkaline **batteries**)
IT 7440-66-6, Zinc, uses 55070-72-9, Nickel hydroxide oxide
(additive for alkaline **batteries**)
IT 1301-96-8, Silver oxide Ago 1303-52-2, Gold hydroxide au(oh)3 1303-58-8, Gold oxide au2o3 1303-61-3, Gold sulfide au2s3 1304-28-5, Barium oxide (BaO), uses 1304-76-3, Bismuth oxide (Bi2O3), uses 1305-62-0, Calcium hydroxide, uses 1305-78-8, Calcia, uses 1306-19-0, Cadmium oxide (CdO), uses 1306-38-3, Cerium oxide ceo2, uses 1309-42-8, Magnesium hydroxide 1309-48-4, Magnesium oxide (MgO), uses 1309-64-4, Antimony oxide (Sb2O3), uses 1312-43-2, India 1313-13-9, Manganese dioxide, uses 1313-99-1, Nickel oxide (NiO), uses 1314-13-2, Zinc oxide, uses 1314-37-0, Ytterbia 7440-57-5D, Gold, salt 7446-07-3, Tellurium oxide (TeO2) 7487-88-9, Magnesium sulfate, uses 7681-52-9, Sodium hypochlorite Naocl 7722-64-7, Potassium permanganate 7727-21-1, Potassium persulfate 7727-43-7, Barium sulfate 7775-27-1, Sodium persulfate 7778-18-9, Calcium sulfate **7783-98-4**, Silver permanganate **7787-36-2**, Barium permanganate 7789-75-5, Calcium fluoride, uses 7790-75-2, Calcium tungsten oxide cawo4 12036-44-1, Thulium oxide 12047-27-7, Barium titanium oxide batio3, uses 12049-50-2, Calcium titanium oxide catio3 12060-58-1, Samaria 12060-59-2, Strontium titanium oxide srtio3 12061-16-4, Erbia 12064-62-9, Gadolinia 12672-51-4, Cobalt hydroxide 13463-67-7, Titania, uses 13773-23-4, Barium iron oxide bafeo4 14857-02-4, Calcium silicate casi2o5 16469-22-0, Yttrium hydroxide 17194-00-2, Barium hydroxide 18480-07-4, Strontium hydroxide 20427-58-1, Zinc hydroxide 20548-54-3, Calcium sulfide (CaS) 20667-12-3, Silver oxide (Ag2O) 20731-62-8, Thulium sulfate 51305-35-2, Gold acetate 61701-27-7, Cobalt hydroxide oxide
(additive for alkaline **batteries**)
IT 7440-44-0, Carbon, uses
(conductive; additive for alkaline **batteries**)
IT 7429-90-5, Aluminum, uses 7439-96-5, **Manganese**, uses

7440-22-4, Silver, uses 7440-48-4, Cobalt, uses
(**dopant**; additive for alkaline **batteries**)

L31 ANSWER 4 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:377215 HCAPLUS Full-text
DOCUMENT NUMBER: 138:356269
TITLE: Fuel-flexible **anodes** for solid oxide fuel cells
INVENTOR(S): Barnett, Scott A.; Liu, Jiang; Madsen, Brian
PATENT ASSIGNEE(S): Northwestern University, USA; Functional Coating Technology, LLC
SOURCE: PCT Int. Appl., 49 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003041196	A1	20030515	WO 2002-US35991 <--	20021107
W: CA, JP, KR RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
US 2003124412	A1	20030703	US 2002-291875 <--	20021107
PRIORITY APPLN. INFO.:			US 2001-348067P <--	P 20011107

ED Entered STN: 16 May 2003
AB The invention is about the electrochem. oxidation of hydrogen and/or hydrocarbons in solid oxide fuel cells, to generate good power densities at low operating temps. Performance is obtained using various ceramic **anode** components, over a range of useful fuels.
IT **216701-11-0**, Chromium lanthanum manganese oxide
(fuel-flexible **anodes** for solid oxide fuel cells)
RN 216701-11-0 HCAPLUS
CN Chromium lanthanum manganese oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Cr	x	7440-47-3
Mn	x	7439-96-5
La	x	7439-91-0

IC ICM H01M004-86
ICS H01M004-90; H01M008-04; H01M008-12
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57, **72**
ST fuel flexible **anode** solid oxide fuel cell
IT Fuel cell **anodes**
Fuels
Oxidation, electrochemical
(fuel-flexible **anodes** for solid oxide fuel cells)
IT Hydrocarbons, uses
(fuel-flexible **anodes** for solid oxide fuel cells)
IT Fuel cells

(solid **electrolyte**; fuel-flexible **anodes** for solid oxide fuel cells)
IT 7440-54-2, Gadolinium, uses
(**dopant**; fuel-flexible **anodes** for solid oxide fuel cells)
IT 12060-59-2, Strontium titanate 55575-02-5, Cerium gadoliniumoxide 57285-40-2, Chromium lanthanum strontium oxide 64417-98-7, Yttrium zirconium oxide 112721-99-0 125297-24-7, Chromium lanthanum manganese strontium oxide Cr0-1La0-1Mn0-1Sr0-1O3 178441-34-4, Chromium lanthanum manganese strontium oxide **216701-11-0**, Chromium lanthanum manganese oxide 518986-11-3 518986-12-4D, O-deficient 518986-13-5, Strontium titanium yttrium oxide (Sr0.86TiY0.08O3)
(fuel-flexible **anodes** for solid oxide fuel cells)
IT 1306-38-3, Ceria, uses 7440-02-0, Nickel, uses
(fuel-flexible **anodes** for solid oxide fuel cells)
IT 74-82-8, Methane, uses 74-98-6, Propane, uses 106-97-8, Butane, uses 1333-74-0, Hydrogen, uses
(fuel-flexible **anodes** for solid oxide fuel cells)
IT 7439-96-5, Manganese, uses 7440-24-6, Strontium, uses 7440-62-2, Vanadium, uses
(lanthanum chromite doped with; fuel-flexible **anodes** for solid oxide fuel cells)
IT 1314-23-4, Zirconia, uses
(yttria-stabilized; fuel-flexible **anodes** for solid oxide fuel cells)
IT 1314-36-9, Yttria, uses
(zirconia stabilized with; fuel-flexible **anodes** for solid oxide fuel cells)
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 5 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:129324 HCAPLUS Full-text
DOCUMENT NUMBER: 138:172788
TITLE: Oxygen ion conducting materials
INVENTOR(S): Vaughey, John; Krumpelt, Michael; Wang, Xiaoping; Carter, J. David
PATENT ASSIGNEE(S): University of Chicago, USA
SOURCE: U.S., 6 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6521202	B1	20030218	US 1999-344859 <--	19990628
US 2003129115	A1	20030710	US 2002-327502 <--	20021220
US 6821498	B2	20041123		
US 2005031519	A1	20050210	US 2004-900054 <--	20040727
US 6916570	B2	20050712		
PRIORITY APPLN. INFO.:			US 1999-344859 <--	A3 19990628
			US 2002-327502	A1 20021220

ED Entered STN: 20 Feb 2003

AB An oxygen ion conducting ceramic oxide that has applications in industry including fuel cells, oxygen pumps, oxygen sensors, and separation membranes. The material is based on the idea that substituting a **dopant** into the host perovskite lattice of (La,Sr)MnO3 that prefers a coordination number lower than 6 will induce oxygen ion vacancies to form in the lattice. Because the oxygen ion conductivity of (La,Sr)MnO3 is low over a large temperature range, the material exhibits a high overpotential when used. The inclusion of oxygen vacancies into the lattice by **doping** the material was found to maintain the desirable properties of (La,Sr)MnO3, while significantly decreasing the exptl. observed overpotential. The material is especially suitable for solid oxide fuel cell cathodes.

IT **124607-16-5**, Lanthanum manganese strontium oxide (La0.79MnSr0.2O3) **497221-32-6**, Lanthanum manganese strontium oxide (La0.54MnSr0.45O3) **497221-33-7**, Lanthanum manganese strontium oxide (La0.59MnSr0.4O3)
(oxygen ion conducting materials based on doped perovskite which are suitable for solid oxide fuel cell cathodes, oxygen sensors, and separation membranes)

RN 124607-16-5 HCAPLUS

CN Lanthanum manganese strontium oxide (La0.79MnSr0.2O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.2	7440-24-6
Mn	1	7439-96-5
La	0.79	7439-91-0

RN 497221-32-6 HCAPLUS

CN Lanthanum manganese strontium oxide (La0.54MnSr0.45O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.45	7440-24-6
Mn	1	7439-96-5
La	0.54	7439-91-0

RN 497221-33-7 HCAPLUS

CN Lanthanum manganese strontium oxide (La0.59MnSr0.4O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.4	7440-24-6
Mn	1	7439-96-5
La	0.59	7439-91-0

IC ICM C01G045-12
ICS B01J023-00; B01J023-32; H01M004-50; H01M004-42

INCL 423599000; 502303000; 502324000; 429220000; 429223000; 429224000; 429229000

CC 49-4 (Industrial Inorganic Chemicals)
Section cross-reference(s): **52**
IT 7440-24-6, Strontium, uses 7440-70-2, Calcium, uses
(**dopant** for lanthanum; oxygen ion conducting materials based on doped perovskite which are suitable for solid oxide fuel cell cathodes, oxygen sensors, and separation membranes)
IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-50-8, Copper, uses 7440-55-3, Gallium, uses 7440-66-6, Zinc, uses
(**dopant** for **manganese**; oxygen ion conducting materials based on doped perovskite which are suitable for solid oxide fuel cell cathodes, oxygen sensors, and separation membranes)
IT 12031-12-8, Lanthanum manganese oxide (LaMnO3) **124607-16-5**, Lanthanum manganese strontium oxide (La0.79MnSr0.2O3) **497221-32-6**, Lanthanum manganese strontium oxide (La0.54MnSr0.45O3) **497221-33-7**, Lanthanum manganese strontium oxide (La0.59MnSr0.4O3) 497221-34-8D, oxygen-deficient
(oxygen ion conducting materials based on doped perovskite which are suitable for solid oxide fuel cell cathodes, oxygen sensors, and separation membranes)
REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 6 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:812169 HCAPLUS Full-text
DOCUMENT NUMBER: 137:327411
TITLE: Structure of solid fuel cell
INVENTOR(S): Kawahata, Takeshi
PATENT ASSIGNEE(S): Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002313362	A	20021025	JP 2001-116306 <--	20010416
PRIORITY APPLN. INFO.:			JP 2001-116306 <--	20010416

ED Entered STN: 25 Oct 2002
AB The fuel cell has a porous Mo **anode** having fine through holes formed by lithog., ion etching, or sintering; a thin Al2O3 **dopant** layer containing 0.01-10 at% Pt on the right side of the **anode**; a composition grade zeolite **electrolyte** layer, having a Si/Al ratio 1.0-5.0 and containing 0.01-10 at% Zr, joined to the **dopant** layer; a porous Ni-LaSrMnO3 **cathode** having fine through holes formed by lithog., ion etching, or sintering; a 1st Cu alloy spacer and a 2nd Cu alloy spacer connected to the left side of the **anode** and the right side of the **cathode**, and a Cu alloy partition on the right side of the 2nd spacer.
IT **126447-16-3**, Lanthanum manganese strontium oxide (LaSrMnO3
(structure of solid **electrolyte** fuel cells having nickel-lanthanum strontium manganese oxide **cathodes**)
RN 126447-16-3 HCAPLUS
CN Lanthanum manganese strontium oxide ((La,Sr)MnO3) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	3	17778-80-2
Sr	0 - 1	7440-24-6
Mn	1	7439-96-5
La	0 - 1	7439-91-0

IC ICM H01M008-02
ICS H01M008-02; H01M004-86; H01M004-88
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST solid **electrolyte** fuel cell structure
IT Fuel cells
(solid **electrolyte**; structure of solid **electrolyte** fuel cells)
IT Zeolites (synthetic), uses
(structure of solid **electrolyte** fuel cells having zirconium containing aluminosilicate zeolite **electrolyte** layers)
IT Copper alloy, base
(structure of solid **electrolyte** fuel cells containing copper spacers)
IT 7439-98-7, Molybdenum, uses
(structure of solid **electrolyte** fuel cells containing porous molybdenum **anodes**)
IT 7440-06-4, Platinum, uses
(structure of solid **electrolyte** fuel cells containing porous platinum **anodes**)
IT 7440-02-0, Nickel, uses **126447-16-3**, Lanthanum manganese strontium oxide (LaSrMnO3
(structure of solid **electrolyte** fuel cells having nickel-lanthanum strontium manganese oxide **cathodes**)
IT 1344-28-1, Alumina, uses 7440-05-3, Palladium, uses
(structure of solid **electrolyte** fuel cells having palladium containing alumina **dopant** layers)

L31 ANSWER 7 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:429279 HCAPLUS Full-text
DOCUMENT NUMBER: 137:8644
TITLE: Method for fabrication of solid oxide fuel cell stack
INVENTOR(S): Hara, Naoki; Kushibiki, Keiko; Sato, Fuminori; Yamanaka, Mitsugu; Uchiyama, Makoto; Hatano, Masaharu
PATENT ASSIGNEE(S): Nissan Motor Co., Ltd., Japan
SOURCE: PCT Int. Appl., 40 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002045198	A2	20020606	WO 2001-JP10233 <--	20011122
WO 2002045198	A3	20030530		
W: CN, KR, US RW: DE, FR, GB				
JP 2002164074	A	20020607	JP 2000-360563 <--	20001128

JP 3674840	B2	20050727		
EP 1338056	A2	20030827	EP 2001-983828 <--	20011122
R: DE, FR, GB				
CN 1636296	A	20050706	CN 2001-805582 <--	20011122
US 2003012995	A1	20030116	US 2002-182051 <--	20020725
US 6969565	B2	20051129		
PRIORITY APPLN. INFO.:			JP 2000-360563 A <--	20001128
			WO 2001-JP10233 W <--	20011122

ED Entered STN: 07 Jun 2002

AB In a solid oxide fuel cell stack, first and second cell plates are alternately stacked. The first cell plates comprise a substrate having a plurality of opening portions, a groove which extends through the plurality of opening portions formed on a lower surface of the substrate, a solid **electrolyte** layer which covers the opening portion formed on an upper surface of the substrate, a fuel **electrode** layer which covers the opening portions formed on the solid **electrolyte** layer, and an air **electrode** layer formed on the lower surface of the substrate so as to extend along the opening portions and the groove. The second cell plates has a structure in which the air **electrode** layer is replaced with the fuel **electrode** layer in the first cell plate. In this fuel cell stack, the air **electrode** layer of the first cell plate faces the air **electrode** layer of the second cell plate, and the fuel **electrode** layer of the first cell plate faces the fuel **electrode** layer of the second cell plate. A method of manufacturing the solid oxide fuel cell stack comprises preparing the first cell plate, preparing the second cell plate, alternately stacking the first and second cell plates, and collectively sintering the stacked first and second cell plates.

IT **59707-46-9**, Lanthanum manganese strontium oxide
(method for fabrication of solid oxide fuel cell stack)

RN 59707-46-9 HCAPLUS

CN Lanthanum manganese strontium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Sr	x	7440-24-6
Mn	x	7439-96-5
La	x	7439-91-0

IC ICM H01M008-24
ICS H01M008-12

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

IT Fuel cells
(solid **electrolyte**; method for fabrication of solid oxide fuel cell stack)

IT 7440-36-0, Antimony, uses
(**dopant**; method for fabrication of solid oxide fuel cell stack)

IT 1313-99-1, Nickel oxide, uses **59707-46-9**, Lanthanum manganese strontium oxide 106830-29-9, Yttrium zirconium oxide Y0.2Zr0.9O2.1
(method for fabrication of solid oxide fuel cell stack)

L31 ANSWER 8 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:886688 HCAPLUS Full-text
DOCUMENT NUMBER: 136:21977
TITLE: **Doped manganese** dioxides for use in **battery electrodes**
INVENTOR(S): Feddrix, Frank H.; Donne, Scott W.; Devenney, Martin; Gorer, Alexander
PATENT ASSIGNEE(S): Eveready Battery Company, Inc., USA
SOURCE: PCT Int. Appl., 59 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001093348	A2	20011206	WO 2001-US17737 <--	20010601
WO 2001093348	A3	20020606		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 2001065294	A5	20011211	AU 2001-65294 <--	20010601
EP 1297581	A2	20030402	EP 2001-939817 <--	20010601
EP 1297581	B1	20050309		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2003535013	T	20031125	JP 2002-500465 <--	20010601
AT 290721	T	20050315	AT 2001-939817 <--	20010601
US 2003215712	A1	20031120	US 2003-296899 <--	20030522
HK 1052082	A1	20050805	HK 2003-104084 <--	20030610
PRIORITY APPLN. INFO.:			US 2000-208610P <--	P 20000601
			WO 2001-US17737 <--	W 20010601

ED Entered STN: 07 Dec 2001

AB This invention relates to **batteries** and, more particularly, to **battery electrodes** comprised of **manganese** dioxide **doped** with at least one element. In one aspect, the invention is a **doped manganese** dioxide useful as an active **electrode** material in both thin film and cylindrical **batteries**. The **doped manganese** dioxides provide several potential benefits, including improved electrochem. performance as compared with conventional manganese dioxides. The **doped manganese** dioxides of this invention comprise manganese, oxygen, and at least one **dopant** deliberately incorporated into the atomic structure of the manganese dioxide. The **doped Mn** dioxide **electrode** materials may be produced by a wet chemical method (CMD) or may be prepared **electrolytically** (EMD) using a solution containing Mn sulfate, H2SO4, and a **dopant**, in which the **dopant** is present in an amount of at least .apprx.25 ppm.

IT **378248-51-2**, Manganese borate oxide (Mn0.99-1(BO3)0-0.01O1.87-2) **378248-52-3**, Magnesium manganese oxide (Mg0-0.01Mn0.99-1O1.9-2) **378248-53-4**, Aluminum manganese oxide (Al0-0.01Mn0.99-1O1.9-2) **378248-54-5**, Manganese oxide silicate (Mn0.99-1O1.86-2(SiO4)0-0.01) **378248-55-6**, Manganese oxide phosphate (Mn0.99-1O1.86-2(PO4)0-0.01) **378248-56-7**, Manganese scandium oxide (Mn0.99-1Sc0-0.01O1.9-2) **378248-57-8**, Manganese titanium oxide (Mn0.99-1Ti0-0.01O1.9-2) **378248-58-9**, Manganese vanadium oxide (Mn0.99-1V0-0.01O1.9-2) **378248-59-0**, Chromium manganese oxide (Cr0-0.01Mn0.99-1O1.9-2) **378248-60-3**, Iron manganese oxide (Fe0-0.01Mn0.99-1O1.9-2) **378248-61-4**, Cobalt manganese oxide (Co0-0.01Mn0.99-1O1.9-2) **378248-62-5**, Manganese nickel oxide (Mn0.99-1Ni0-0.01O1.9-2) **378248-63-6**, Copper manganese oxide (Cu0-0.01Mn0.99-1O1.9-2) **378248-64-7**, Manganese zinc oxide (Mn0.99-1Zn0-0.01O1.9-2) **378248-65-8**, Gallium manganese oxide (Ga0-0.01Mn0.99-1O1.9-2) **378248-67-0**, Manganese strontium oxide (Mn0.99-1Sr0-0.01O1.9-2) **378248-68-1**, Manganese yttrium oxide (Mn0.99-1Y0-0.01O1.9-2) **378248-69-2**, Manganese zirconium oxide (Mn0.99-1Zr0-0.01O1.9-2) **378248-70-5**, Manganese niobium oxide (Mn0.99-1Nb0-0.01O1.9-2) **378248-71-6**, Manganese ruthenium oxide (Mn0.99-1Ru0-0.01O1.9-2) **378248-72-7**, Manganese rhodium oxide (Mn0.99-1Rh0-0.01O1.9-2) **378248-73-8**, Manganese palladium oxide (Mn0.99-1Pd0-0.01O1.9-2) **378248-74-9**, Manganese silver oxide (Mn0.99-1Ag0-0.01O1.9-2) **378248-75-0**, Indium manganese oxide (In0-0.01Mn0.99-1O1.9-2) **378248-76-1**, Manganese tin oxide (Mn0.99-1Sn0-0.01O1.9-2) **378248-77-2**, Barium manganese oxide (Ba0-0.01Mn0.99-1O1.9-2) **378248-78-3**, Cerium manganese oxide (Ce0-0.01Mn0.99-1O1.9-2) **378248-79-4**, Hafnium manganese oxide (Hf0-0.01Mn0.99-1O1.9-2) **378248-80-7**, Manganese tantalum oxide (Mn0.99-1Ta0-0.01O1.9-2) **378248-81-8**, Manganese rhenium oxide (Mn0.99-1Re0-0.01O1.9-2) **378248-82-9**, Manganese osmium oxide (Mn0.99-1Os0-0.01O1.9-2) **378248-83-0**, Iridium manganese oxide (Ir0-0.01Mn0.99-1O1.9-2) **378248-84-1**, Manganese platinum oxide (Mn0.99-1Pt0-0.01O1.9-2) **378248-85-2**, Gold manganese oxide (Au0-0.01Mn0.99-1O1.9-2) **378248-86-3**, Bismuth manganese oxide (Bi0-0.01Mn0.99-1O1.9-2) **378248-87-4**, Aluminum manganese nickel oxide (Al0-0.01Mn0.99-1Ni0-0.01O1.9-2) **378248-88-5**, Manganese nickel borate oxide (Mn0.99-1Ni0-0.01(BO3)0-0.01O1.87-2) **378248-89-6**, Manganese zirconium borate oxide (Mn0.99-1Zr0-0.01(BO3)0-0.01O1.87-2) **378248-90-9**, Manganese titanium borate oxide (Mn0.99-1Ti0-0.01(BO3)0-0.01O1.87-2) **378248-91-0**, Hafnium manganese borate oxide (Hf0-0.01Mn0.99-1(BO3)0-0.01O1.87-2) **378248-92-1**, Aluminum manganese tantalum oxide (Al0-0.01Mn0.99-1Ta0-0.01O1.9-2) **378248-93-2**, Manganese tantalum borate oxide (Mn0.99-1Ta0-0.01(BO3)0-0.01O1.87-2) **378248-94-3**, Manganese niobium borate oxide (Mn0.99-1Nb0-0.01(BO3)0-0.01O1.87-2) **378248-95-4**, Aluminum manganese niobium oxide (Al0-0.01Mn0.99-1Nb0-0.01O1.9-2) **378248-96-5**, Manganese niobium zirconium oxide (Mn0.99-1Nb0-0.01Zr0-0.01O1.9-2) **378248-97-6**, Aluminum manganese zirconium oxide (Al0-0.01Mn0.99-1Zr0-0.01O1.9-2) **378248-98-7**, Gallium manganese zirconium oxide (Ga0-0.01Mn0.99-1Zr0-0.01O1.9-2) **378248-99-8**, Cerium manganese zirconium oxide (Ce0-0.01Mn0.99-1Zr0-0.01O1.9-2) **378249-00-4**, Hafnium manganese zinc oxide (Hf0-0.01Mn0.99-1Zn0-0.01O1.9-2) **378249-01-5**, Cerium manganese borate oxide (Ce0-0.01Mn0.99-1(BO3)0-0.01O1.87-2) **378249-02-6**, Gallium

manganese borate oxide (Ga0-0.01Mn0.99-1(BO3)0-0.01O1.87-2) **378249-03-7**, Cerium hafnium manganese oxide (Ce0-0.01Hf0-0.01Mn0.99-1O1.9-2) **378249-04-8**, Aluminum manganese borate oxide (Al0-0.01Mn0.99-1(BO3)0-0.01O1.87-2) **378249-05-9**, Aluminum gallium manganese oxide (Al0-0.01Ga0-0.01Mn0.99-1O1.9-2) **378249-06-0**, Manganese zinc borate oxide (Mn0.99-1Zn0-0.01(BO3)0-0.01O1.87-2) **378249-07-1**, Cerium manganese zinc oxide (Ce0-0.01Mn0.99-1Zn0-0.01O1.9-2) **378249-08-2**, Cerium gallium manganese oxide (Ce0-0.01Ga0-0.01Mn0.99-1O1.9-2) **378249-09-3**, Aluminum hafnium manganese oxide (Al0-0.01Hf0-0.01Mn0.99-1O1.9-2) **378249-10-6**, Hafnium manganese zirconium oxide (Hf0-0.01Mn0.99-1Zr0-0.01O1.9-2) **378249-11-7**, Manganese zinc zirconium oxide (Mn0.99-1Zn0-0.01Zr0-0.01O1.9-2) **378249-12-8**, Gallium hafnium manganese oxide (Ga0-0.01Hf0-0.01Mn0.99-1O1.9-2) **378249-13-9**, Gallium manganese nickel oxide (Ga0-0.01Mn0.99-1Ni0-0.01O1.9-2) **378249-14-0**, Manganese nickel zinc oxide (Mn0.99-1Ni0-0.01Zn0-0.01O1.9-2) **378249-15-1**, Gallium manganese silver oxide (Ga0-0.01Mn0.99-1Ag0-0.01O1.9-2) **378249-16-2**, Indium manganese nickel oxide (In0-0.01Mn0.99-1Ni0-0.01O1.9-2) **378249-17-3**, Hafnium manganese nickel oxide (Hf0-0.01Mn0.99-1Ni0-0.01O1.9-2) **378249-18-4**, Indium manganese zirconium oxide (In0-0.01Mn0.99-1Zr0-0.01O1.9-2) **378249-19-5**, Manganese silver borate oxide (Mn0.99-1Ag0-0.01(BO3)0-0.01O1.87-2) **378249-20-8**, Aluminum manganese zinc oxide (Al0-0.01Mn0.99-1Zn0-0.01O1.9-2) **378249-21-9**, Gallium manganese zinc oxide (Ga0-0.01Mn0.99-1Zn0-0.01O1.9-2) **378249-22-0**, Chromium manganese borate oxide (Cr0-0.01Mn0.99-1(BO3)0-0.01O1.87-2) **378249-23-1**, Chromium manganese zinc oxide (Cr0-0.01Mn0.99-1Zn0-0.01O1.9-2) **378249-24-2**, Aluminum chromium manganese oxide (Al0-0.01Cr0-0.01Mn0.99-1O1.9-2) **378249-25-3**, Chromium indium manganese oxide (Cr0-0.01In0-0.01Mn0.99-1O1.9-2) **378249-26-4**, Chromium gallium manganese oxide (Cr0-0.01Ga0-0.01Mn0.99-1O1.9-2) **378249-27-5**, Chromium hafnium manganese oxide (Cr0-0.01Hf0-0.01Mn0.99-1O1.9-2) **378249-28-6**, Manganese nickel silver oxide (Mn0.99-1Ni0-0.01Ag0-0.01O1.9-2) **378249-29-7**, Aluminum manganese silver oxide (Al0-0.01Mn0.99-1Ag0-0.01O1.9-2) **378249-30-0**, Chromium manganese silver oxide (Cr0-0.01Mn0.99-1Ag0-0.01O1.9-2) **378249-31-1**, Cerium chromium manganese oxide (Ce0-0.01Cr0-0.01Mn0.99-1O1.9-2) **378249-32-2**, Chromium manganese zirconium oxide (Cr0-0.01Mn0.99-1Zr0-0.01O1.9-2) **378249-33-3**, Manganese silver zirconium oxide (Mn0.99-1Ag0-0.01Zr0-0.01O1.9-2) **378249-34-4**, Cerium manganese silver oxide (Ce0-0.01Mn0.99-1Ag0-0.01O1.9-2) **378249-35-5**, Chromium copper manganese oxide (Cr0-0.01Cu0-0.01Mn0.99-1O1.9-2) **378249-36-6**, Copper manganese zirconium oxide (Cu0-0.01Mn0.99-1Zr0-0.01O1.9-2) **378249-37-7**, Hafnium manganese silver oxide (Hf0-0.01Mn0.99-1Ag0-0.01O1.9-2) **378249-38-8**, Manganese silver zinc oxide (Mn0.99-1Ag0-0.01Zn0-0.01O1.9-2) **378249-39-9**, Manganese ruthenium zirconium oxide (Mn0.99-1Ru0-0.01Zr0-0.01O1.9-2) **378249-40-2**, Cerium manganese ruthenium oxide (Ce0-0.01Mn0.99-1Ru0-0.01O1.9-2) **378249-41-3**, Hafnium manganese ruthenium oxide (Hf0-0.01Mn0.99-1Ru0-0.01O1.9-2) **378249-42-4**, Aluminum manganese ruthenium oxide (Al0-0.01Mn0.99-1Ru0-0.01O1.9-2) **378253-12-4**, Antimony manganese oxide (Sb0-0.01Mn0.99-1O1.9-2)

378253-13-5, Chromium manganese nickel oxide (Cr0-0.01Mn0.99-1Ni0-0.01O1.9-2)
(**doped manganese** dioxides for use in **battery electrodes**)

RN 378248-51-2 HCAPLUS
CN Manganese borate oxide (Mn0.99-1(BO3)0-0.01O1.87-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.87 - 2	17778-80-2
BO3	0 - 0.01	14213-97-9
Mn	0.99 - 1	7439-96-5

RN 378248-52-3 HCAPLUS
CN Magnesium manganese oxide (Mg0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Mn	0.99 - 1	7439-96-5
Mg	0 - 0.01	7439-95-4

RN 378248-53-4 HCAPLUS
CN Aluminum manganese oxide (Al0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Mn	0.99 - 1	7439-96-5
Al	0 - 0.01	7429-90-5

RN 378248-54-5 HCAPLUS
CN Manganese oxide silicate (Mn0.99-1O1.86-2(SiO4)0-0.01) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.86 - 2	17778-80-2
O4Si	0 - 0.01	17181-37-2
Mn	0.99 - 1	7439-96-5

RN 378248-55-6 HCAPLUS
CN Manganese oxide phosphate (Mn0.99-1O1.86-2(PO4)0-0.01) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.86 - 2	17778-80-2
O4P	0 - 0.01	14265-44-2
Mn	0.99 - 1	7439-96-5

RN 378248-56-7 HCAPLUS

CN Manganese scandium oxide (Mn0.99-1Sc0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Sc	0 - 0.01	7440-20-2
Mn	0.99 - 1	7439-96-5

RN 378248-57-8 HCAPLUS
CN Manganese titanium oxide (Mn0.99-1Ti0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Ti	0 - 0.01	7440-32-6
Mn	0.99 - 1	7439-96-5

RN 378248-58-9 HCAPLUS
CN Manganese vanadium oxide (Mn0.99-1V0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
V	0 - 0.01	7440-62-2
Mn	0.99 - 1	7439-96-5

RN 378248-59-0 HCAPLUS
CN Chromium manganese oxide (Cr0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Cr	0 - 0.01	7440-47-3
Mn	0.99 - 1	7439-96-5

RN 378248-60-3 HCAPLUS
CN Iron manganese oxide (Fe0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Mn	0.99 - 1	7439-96-5
Fe	0 - 0.01	7439-89-6

RN 378248-61-4 HCAPLUS
CN Cobalt manganese oxide (Co0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2

Co	0 - 0.01	7440-48-4
Mn	0.99 - 1	7439-96-5

RN 378248-62-5 HCAPLUS
CN Manganese nickel oxide (Mn0.99-1Ni0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Ni	0 - 0.01	7440-02-0
Mn	0.99 - 1	7439-96-5

RN 378248-63-6 HCAPLUS
CN Copper manganese oxide (Cu0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Cu	0 - 0.01	7440-50-8
Mn	0.99 - 1	7439-96-5

RN 378248-64-7 HCAPLUS
CN Manganese zinc oxide (Mn0.99-1Zn0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Zn	0 - 0.01	7440-66-6
Mn	0.99 - 1	7439-96-5

RN 378248-65-8 HCAPLUS
CN Gallium manganese oxide (Ga0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Ga	0 - 0.01	7440-55-3
Mn	0.99 - 1	7439-96-5

RN 378248-67-0 HCAPLUS
CN Manganese strontium oxide (Mn0.99-1Sr0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Sr	0 - 0.01	7440-24-6
Mn	0.99 - 1	7439-96-5

RN 378248-68-1 HCAPLUS
CN Manganese yttrium oxide (Mn0.99-1Y0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	1.9 - 2	17778-80-2
Y	0 - 0.01	7440-65-5
Mn	0.99 - 1	7439-96-5

RN 378248-69-2 HCAPLUS
CN Manganese zirconium oxide (Mn0.99-1Zr0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Zr	0 - 0.01	7440-67-7
Mn	0.99 - 1	7439-96-5

RN 378248-70-5 HCAPLUS
CN Manganese niobium oxide (Mn0.99-1Nb0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Nb	0 - 0.01	7440-03-1
Mn	0.99 - 1	7439-96-5

RN 378248-71-6 HCAPLUS
CN Manganese ruthenium oxide (Mn0.99-1Ru0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Ru	0 - 0.01	7440-18-8
Mn	0.99 - 1	7439-96-5

RN 378248-72-7 HCAPLUS
CN Manganese rhodium oxide (Mn0.99-1Rh0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Rh	0 - 0.01	7440-16-6
Mn	0.99 - 1	7439-96-5

RN 378248-73-8 HCAPLUS
CN Manganese palladium oxide (Mn0.99-1Pd0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Pd	0 - 0.01	7440-05-3
Mn	0.99 - 1	7439-96-5

RN 378248-74-9 HCAPLUS
CN Manganese silver oxide (Mn0.99-1Ag0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Ag	0 - 0.01	7440-22-4
Mn	0.99 - 1	7439-96-5

RN 378248-75-0 HCAPLUS
CN Indium manganese oxide (In0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
In	0 - 0.01	7440-74-6
Mn	0.99 - 1	7439-96-5

RN 378248-76-1 HCAPLUS
CN Manganese tin oxide (Mn0.99-1Sn0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Sn	0 - 0.01	7440-31-5
Mn	0.99 - 1	7439-96-5

RN 378248-77-2 HCAPLUS
CN Barium manganese oxide (Ba0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Ba	0 - 0.01	7440-39-3
Mn	0.99 - 1	7439-96-5

RN 378248-78-3 HCAPLUS
CN Cerium manganese oxide (Ce0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Ce	0 - 0.01	7440-45-1
Mn	0.99 - 1	7439-96-5

RN 378248-79-4 HCAPLUS
CN Hafnium manganese oxide (Hf0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Hf	0 - 0.01	7440-58-6
Mn	0.99 - 1	7439-96-5

RN 378248-80-7 HCAPLUS
CN Manganese tantalum oxide (Mn0.99-1Ta0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Ta	0 - 0.01	7440-25-7
Mn	0.99 - 1	7439-96-5

RN 378248-81-8 HCAPLUS
CN Manganese rhenium oxide (Mn0.99-1Re0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Re	0 - 0.01	7440-15-5
Mn	0.99 - 1	7439-96-5

RN 378248-82-9 HCAPLUS
CN Manganese osmium oxide (Mn0.99-1Os0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Os	0 - 0.01	7440-04-2
Mn	0.99 - 1	7439-96-5

RN 378248-83-0 HCAPLUS
CN Iridium manganese oxide (Ir0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Mn	0.99 - 1	7439-96-5
Ir	0 - 0.01	7439-88-5

RN 378248-84-1 HCAPLUS
CN Manganese platinum oxide (Mn0.99-1Pt0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Pt	0 - 0.01	7440-06-4
Mn	0.99 - 1	7439-96-5

RN 378248-85-2 HCAPLUS
CN Gold manganese oxide (Au0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	1.9 - 2	17778-80-2
Au	0 - 0.01	7440-57-5
Mn	0.99 - 1	7439-96-5

RN 378248-86-3 HCAPLUS
CN Bismuth manganese oxide (Bi0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Bi	0 - 0.01	7440-69-9
Mn	0.99 - 1	7439-96-5

RN 378248-87-4 HCAPLUS
CN Aluminum manganese nickel oxide (Al0-0.01Mn0.99-1Ni0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Ni	0 - 0.01	7440-02-0
Mn	0.99 - 1	7439-96-5
Al	0 - 0.01	7429-90-5

RN 378248-88-5 HCAPLUS
CN Manganese nickel borate oxide (Mn0.99-1Ni0-0.01(BO3)0-0.01O1.87-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.87 - 2	17778-80-2
BO3	0 - 0.01	14213-97-9
Ni	0 - 0.01	7440-02-0
Mn	0.99 - 1	7439-96-5

RN 378248-89-6 HCAPLUS
CN Manganese zirconium borate oxide (Mn0.99-1Zr0-0.01(BO3)0-0.01O1.87-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.87 - 2	17778-80-2
BO3	0 - 0.01	14213-97-9
Zr	0 - 0.01	7440-67-7
Mn	0.99 - 1	7439-96-5

RN 378248-90-9 HCAPLUS
CN Manganese titanium borate oxide (Mn0.99-1Ti0-0.01(BO3)0-0.01O1.87-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.87 - 2	17778-80-2

BO3	0 - 0.01	14213-97-9
Ti	0 - 0.01	7440-32-6
Mn	0.99 - 1	7439-96-5

RN 378248-91-0 HCAPLUS
CN Hafnium manganese borate oxide (Hf0-0.01Mn0.99-1(BO3)0-0.01O1.87-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.87 - 2	17778-80-2
BO3	0 - 0.01	14213-97-9
Hf	0 - 0.01	7440-58-6
Mn	0.99 - 1	7439-96-5

RN 378248-92-1 HCAPLUS
CN Aluminum manganese tantalum oxide (Al0-0.01Mn0.99-1Ta0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Ta	0 - 0.01	7440-25-7
Mn	0.99 - 1	7439-96-5
Al	0 - 0.01	7429-90-5

RN 378248-93-2 HCAPLUS
CN Manganese tantalum borate oxide (Mn0.99-1Ta0-0.01(BO3)0-0.01O1.87-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.87 - 2	17778-80-2
BO3	0 - 0.01	14213-97-9
Ta	0 - 0.01	7440-25-7
Mn	0.99 - 1	7439-96-5

RN 378248-94-3 HCAPLUS
CN Manganese niobium borate oxide (Mn0.99-1Nb0-0.01(BO3)0-0.01O1.87-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.87 - 2	17778-80-2
BO3	0 - 0.01	14213-97-9
Nb	0 - 0.01	7440-03-1
Mn	0.99 - 1	7439-96-5

RN 378248-95-4 HCAPLUS
CN Aluminum manganese niobium oxide (Al0-0.01Mn0.99-1Nb0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2

Nb	0 - 0.01	7440-03-1
Mn	0.99 - 1	7439-96-5
Al	0 - 0.01	7429-90-5

RN 378248-96-5 HCAPLUS
CN Manganese niobium zirconium oxide (Mn0.99-1Nb0-0.01Zr0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Zr	0 - 0.01	7440-67-7
Nb	0 - 0.01	7440-03-1
Mn	0.99 - 1	7439-96-5

RN 378248-97-6 HCAPLUS
CN Aluminum manganese zirconium oxide (Al0-0.01Mn0.99-1Zr0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Zr	0 - 0.01	7440-67-7
Mn	0.99 - 1	7439-96-5
Al	0 - 0.01	7429-90-5

RN 378248-98-7 HCAPLUS
CN Gallium manganese zirconium oxide (Ga0-0.01Mn0.99-1Zr0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Zr	0 - 0.01	7440-67-7
Ga	0 - 0.01	7440-55-3
Mn	0.99 - 1	7439-96-5

RN 378248-99-8 HCAPLUS
CN Cerium manganese zirconium oxide (Ce0-0.01Mn0.99-1Zr0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Zr	0 - 0.01	7440-67-7
Ce	0 - 0.01	7440-45-1
Mn	0.99 - 1	7439-96-5

RN 378249-00-4 HCAPLUS
CN Hafnium manganese zinc oxide (Hf0-0.01Mn0.99-1Zn0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2

Zn	0 - 0.01	7440-66-6
Hf	0 - 0.01	7440-58-6
Mn	0.99 - 1	7439-96-5

RN 378249-01-5 HCAPLUS
CN Cerium manganese borate oxide (Ce0-0.01Mn0.99-1(BO3)0-0.01O1.87-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.87 - 2	17778-80-2
BO3	0 - 0.01	14213-97-9
Ce	0 - 0.01	7440-45-1
Mn	0.99 - 1	7439-96-5

RN 378249-02-6 HCAPLUS
CN Gallium manganese borate oxide (Ga0-0.01Mn0.99-1(BO3)0-0.01O1.87-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.87 - 2	17778-80-2
BO3	0 - 0.01	14213-97-9
Ga	0 - 0.01	7440-55-3
Mn	0.99 - 1	7439-96-5

RN 378249-03-7 HCAPLUS
CN Cerium hafnium manganese oxide (Ce0-0.01Hf0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Hf	0 - 0.01	7440-58-6
Ce	0 - 0.01	7440-45-1
Mn	0.99 - 1	7439-96-5

RN 378249-04-8 HCAPLUS
CN Aluminum manganese borate oxide (Al0-0.01Mn0.99-1(BO3)0-0.01O1.87-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.87 - 2	17778-80-2
BO3	0 - 0.01	14213-97-9
Mn	0.99 - 1	7439-96-5
Al	0 - 0.01	7429-90-5

RN 378249-05-9 HCAPLUS
CN Aluminum gallium manganese oxide (Al0-0.01Ga0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2

Ga	0 - 0.01	7440-55-3
Mn	0.99 - 1	7439-96-5
Al	0 - 0.01	7429-90-5

RN 378249-06-0 HCAPLUS
CN Manganese zinc borate oxide (Mn0.99-1Zn0-0.01(BO3)0-0.01O1.87-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.87 - 2	17778-80-2
BO3	0 - 0.01	14213-97-9
Zn	0 - 0.01	7440-66-6
Mn	0.99 - 1	7439-96-5

RN 378249-07-1 HCAPLUS
CN Cerium manganese zinc oxide (Ce0-0.01Mn0.99-1Zn0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Zn	0 - 0.01	7440-66-6
Ce	0 - 0.01	7440-45-1
Mn	0.99 - 1	7439-96-5

RN 378249-08-2 HCAPLUS
CN Cerium gallium manganese oxide (Ce0-0.01Ga0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Ga	0 - 0.01	7440-55-3
Ce	0 - 0.01	7440-45-1
Mn	0.99 - 1	7439-96-5

RN 378249-09-3 HCAPLUS
CN Aluminum hafnium manganese oxide (Al0-0.01Hf0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Hf	0 - 0.01	7440-58-6
Mn	0.99 - 1	7439-96-5
Al	0 - 0.01	7429-90-5

RN 378249-10-6 HCAPLUS
CN Hafnium manganese zirconium oxide (Hf0-0.01Mn0.99-1Zr0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2

Zr	0 - 0.01	7440-67-7
Hf	0 - 0.01	7440-58-6
Mn	0.99 - 1	7439-96-5

RN 378249-11-7 HCAPLUS
CN Manganese zinc zirconium oxide (Mn0.99-1Zn0-0.01Zr0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Zr	0 - 0.01	7440-67-7
Zn	0 - 0.01	7440-66-6
Mn	0.99 - 1	7439-96-5

RN 378249-12-8 HCAPLUS
CN Gallium hafnium manganese oxide (Ga0-0.01Hf0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Hf	0 - 0.01	7440-58-6
Ga	0 - 0.01	7440-55-3
Mn	0.99 - 1	7439-96-5

RN 378249-13-9 HCAPLUS
CN Gallium manganese nickel oxide (Ga0-0.01Mn0.99-1Ni0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Ga	0 - 0.01	7440-55-3
Ni	0 - 0.01	7440-02-0
Mn	0.99 - 1	7439-96-5

RN 378249-14-0 HCAPLUS
CN Manganese nickel zinc oxide (Mn0.99-1Ni0-0.01Zn0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Zn	0 - 0.01	7440-66-6
Ni	0 - 0.01	7440-02-0
Mn	0.99 - 1	7439-96-5

RN 378249-15-1 HCAPLUS
CN Gallium manganese silver oxide (Ga0-0.01Mn0.99-1Ag0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2

Ga	0 - 0.01	7440-55-3
Ag	0 - 0.01	7440-22-4
Mn	0.99 - 1	7439-96-5

RN 378249-16-2 HCAPLUS
CN Indium manganese nickel oxide (In0-0.01Mn0.99-1Ni0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
In	0 - 0.01	7440-74-6
Ni	0 - 0.01	7440-02-0
Mn	0.99 - 1	7439-96-5

RN 378249-17-3 HCAPLUS
CN Hafnium manganese nickel oxide (Hf0-0.01Mn0.99-1Ni0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Hf	0 - 0.01	7440-58-6
Ni	0 - 0.01	7440-02-0
Mn	0.99 - 1	7439-96-5

RN 378249-18-4 HCAPLUS
CN Indium manganese zirconium oxide (In0-0.01Mn0.99-1Zr0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
In	0 - 0.01	7440-74-6
Zr	0 - 0.01	7440-67-7
Mn	0.99 - 1	7439-96-5

RN 378249-19-5 HCAPLUS
CN Manganese silver borate oxide (Mn0.99-1Ag0-0.01(BO3)0-0.01O1.87-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.87 - 2	17778-80-2
BO3	0 - 0.01	14213-97-9
Ag	0 - 0.01	7440-22-4
Mn	0.99 - 1	7439-96-5

RN 378249-20-8 HCAPLUS
CN Aluminum manganese zinc oxide (Al0-0.01Mn0.99-1Zn0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2

Zn	0 - 0.01	7440-66-6
Mn	0.99 - 1	7439-96-5
Al	0 - 0.01	7429-90-5

RN 378249-21-9 HCAPLUS
CN Gallium manganese zinc oxide (Ga0-0.01Mn0.99-1Zn0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Zn	0 - 0.01	7440-66-6
Ga	0 - 0.01	7440-55-3
Mn	0.99 - 1	7439-96-5

RN 378249-22-0 HCAPLUS
CN Chromium manganese borate oxide (Cr0-0.01Mn0.99-1(BO3)0-0.01O1.87-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.87 - 2	17778-80-2
BO3	0 - 0.01	14213-97-9
Cr	0 - 0.01	7440-47-3
Mn	0.99 - 1	7439-96-5

RN 378249-23-1 HCAPLUS
CN Chromium manganese zinc oxide (Cr0-0.01Mn0.99-1Zn0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Zn	0 - 0.01	7440-66-6
Cr	0 - 0.01	7440-47-3
Mn	0.99 - 1	7439-96-5

RN 378249-24-2 HCAPLUS
CN Aluminum chromium manganese oxide (Al0-0.01Cr0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Cr	0 - 0.01	7440-47-3
Mn	0.99 - 1	7439-96-5
Al	0 - 0.01	7429-90-5

RN 378249-25-3 HCAPLUS
CN Chromium indium manganese oxide (Cr0-0.01In0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2

In	0 - 0.01	7440-74-6
Cr	0 - 0.01	7440-47-3
Mn	0.99 - 1	7439-96-5

RN 378249-26-4 HCAPLUS
CN Chromium gallium manganese oxide (Cr0-0.01Ga0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Ga	0 - 0.01	7440-55-3
Cr	0 - 0.01	7440-47-3
Mn	0.99 - 1	7439-96-5

RN 378249-27-5 HCAPLUS
CN Chromium hafnium manganese oxide (Cr0-0.01Hf0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Hf	0 - 0.01	7440-58-6
Cr	0 - 0.01	7440-47-3
Mn	0.99 - 1	7439-96-5

RN 378249-28-6 HCAPLUS
CN Manganese nickel silver oxide (Mn0.99-1Ni0-0.01Ag0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Ag	0 - 0.01	7440-22-4
Ni	0 - 0.01	7440-02-0
Mn	0.99 - 1	7439-96-5

RN 378249-29-7 HCAPLUS
CN Aluminum manganese silver oxide (Al0-0.01Mn0.99-1Ag0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Ag	0 - 0.01	7440-22-4
Mn	0.99 - 1	7439-96-5
Al	0 - 0.01	7429-90-5

RN 378249-30-0 HCAPLUS
CN Chromium manganese silver oxide (Cr0-0.01Mn0.99-1Ag0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2

Cr	0 - 0.01	7440-47-3
Ag	0 - 0.01	7440-22-4
Mn	0.99 - 1	7439-96-5

RN 378249-31-1 HCAPLUS
CN Cerium chromium manganese oxide (Ce0-0.01Cr0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Cr	0 - 0.01	7440-47-3
Ce	0 - 0.01	7440-45-1
Mn	0.99 - 1	7439-96-5

RN 378249-32-2 HCAPLUS
CN Chromium manganese zirconium oxide (Cr0-0.01Mn0.99-1Zr0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Zr	0 - 0.01	7440-67-7
Cr	0 - 0.01	7440-47-3
Mn	0.99 - 1	7439-96-5

RN 378249-33-3 HCAPLUS
CN Manganese silver zirconium oxide (Mn0.99-1Ag0-0.01Zr0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Zr	0 - 0.01	7440-67-7
Ag	0 - 0.01	7440-22-4
Mn	0.99 - 1	7439-96-5

RN 378249-34-4 HCAPLUS
CN Cerium manganese silver oxide (Ce0-0.01Mn0.99-1Ag0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Ce	0 - 0.01	7440-45-1
Ag	0 - 0.01	7440-22-4
Mn	0.99 - 1	7439-96-5

RN 378249-35-5 HCAPLUS
CN Chromium copper manganese oxide (Cr0-0.01Cu0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2

Cu	0 - 0.01	7440-50-8
Cr	0 - 0.01	7440-47-3
Mn	0.99 - 1	7439-96-5

RN 378249-36-6 HCAPLUS
CN Copper manganese zirconium oxide (Cu0-0.01Mn0.99-1Zr0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Zr	0 - 0.01	7440-67-7
Cu	0 - 0.01	7440-50-8
Mn	0.99 - 1	7439-96-5

RN 378249-37-7 HCAPLUS
CN Hafnium manganese silver oxide (Hf0-0.01Mn0.99-1Ag0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Hf	0 - 0.01	7440-58-6
Ag	0 - 0.01	7440-22-4
Mn	0.99 - 1	7439-96-5

RN 378249-38-8 HCAPLUS
CN Manganese silver zinc oxide (Mn0.99-1Ag0-0.01Zn0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Zn	0 - 0.01	7440-66-6
Ag	0 - 0.01	7440-22-4
Mn	0.99 - 1	7439-96-5

RN 378249-39-9 HCAPLUS
CN Manganese ruthenium zirconium oxide (Mn0.99-1Ru0-0.01Zr0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Zr	0 - 0.01	7440-67-7
Ru	0 - 0.01	7440-18-8
Mn	0.99 - 1	7439-96-5

RN 378249-40-2 HCAPLUS
CN Cerium manganese ruthenium oxide (Ce0-0.01Mn0.99-1Ru0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2

Ce	0 - 0.01	7440-45-1
Ru	0 - 0.01	7440-18-8
Mn	0.99 - 1	7439-96-5

RN 378249-41-3 HCAPLUS
CN Hafnium manganese ruthenium oxide (Hf0-0.01Mn0.99-1Ru0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Hf	0 - 0.01	7440-58-6
Ru	0 - 0.01	7440-18-8
Mn	0.99 - 1	7439-96-5

RN 378249-42-4 HCAPLUS
CN Aluminum manganese ruthenium oxide (Al0-0.01Mn0.99-1Ru0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Ru	0 - 0.01	7440-18-8
Mn	0.99 - 1	7439-96-5
Al	0 - 0.01	7429-90-5

RN 378253-12-4 HCAPLUS
CN Antimony manganese oxide (Sb0-0.01Mn0.99-1O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Sb	0 - 0.01	7440-36-0
Mn	0.99 - 1	7439-96-5

RN 378253-13-5 HCAPLUS
CN Chromium manganese nickel oxide (Cr0-0.01Mn0.99-1Ni0-0.01O1.9-2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2	17778-80-2
Cr	0 - 0.01	7440-47-3
Ni	0 - 0.01	7440-02-0
Mn	0.99 - 1	7439-96-5

IC ICM H01M
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57, 76
ST **doping manganese** oxide **battery electrode**
IT **Battery electrodes**
Dopants
Doping

Electrodeposition
Primary **batteries**
(**doped manganese** dioxides for use in **battery electrodes**)

IT Coating process
(plating; **doped manganese** dioxides for use in **battery electrodes**)

IT 7440-66-6, Zinc, uses
(**anode** material; **doped manganese** dioxides for use in **battery electrodes**)

IT 1310-58-3, Potassium hydroxide, uses
(**battery electrolyte**; **doped manganese** dioxides for use in **battery electrodes**)

IT 7664-93-9, Sulfuric acid, reactions 7785-87-7, **Manganese** sulfate
(**doped manganese** dioxides for use in **battery electrodes**)

IT 1313-13-9, **Manganese** dioxide, uses 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses **378248-51-2**, Manganese borate oxide (Mn0.99-1(BO3)0-0.01O1.87-2) **378248-52-3**, Magnesium manganese oxide (Mg0-0.01Mn0.99-1O1.9-2) **378248-53-4**, Aluminum manganese oxide (Al0-0.01Mn0.99-1O1.9-2) **378248-54-5**, Manganese oxide silicate (Mn0.99-1O1.86-2(SiO4)0-0.01) **378248-55-6**, Manganese oxide phosphate (Mn0.99-1O1.86-2(PO4)0-0.01) **378248-56-7**, Manganese scandium oxide (Mn0.99-1Sc0-0.01O1.9-2) **378248-57-8**, Manganese titanium oxide (Mn0.99-1Ti0-0.01O1.9-2) **378248-58-9**, Manganese vanadium oxide (Mn0.99-1V0-0.01O1.9-2) **378248-59-0**, Chromium manganese oxide (Cr0-0.01Mn0.99-1O1.9-2) **378248-60-3**, Iron manganese oxide (Fe0-0.01Mn0.99-1O1.9-2) **378248-61-4**, Cobalt manganese oxide (Co0-0.01Mn0.99-1O1.9-2) **378248-62-5**, Manganese nickel oxide (Mn0.99-1Ni0-0.01O1.9-2) **378248-63-6**, Copper manganese oxide (Cu0-0.01Mn0.99-1O1.9-2) **378248-64-7**, Manganese zinc oxide (Mn0.99-1Zn0-0.01O1.9-2) **378248-65-8**, Gallium manganese oxide (Ga0-0.01Mn0.99-1O1.9-2) 378248-66-9, Germanium manganese oxide (Ge0-0.01Mn0.99-1O1.9-2) **378248-67-0**, Manganese strontium oxide (Mn0.99-1Sr0-0.01O1.9-2) **378248-68-1**, Manganese yttrium oxide (Mn0.99-1Y0-0.01O1.9-2) **378248-69-2**, Manganese zirconium oxide (Mn0.99-1Zr0-0.01O1.9-2) **378248-70-5**, Manganese niobium oxide (Mn0.99-1Nb0-0.01O1.9-2) **378248-71-6**, Manganese ruthenium oxide (Mn0.99-1Ru0-0.01O1.9-2) **378248-72-7**, Manganese rhodium oxide (Mn0.99-1Rh0-0.01O1.9-2) **378248-73-8**, Manganese palladium oxide (Mn0.99-1Pd0-0.01O1.9-2) **378248-74-9**, Manganese silver oxide (Mn0.99-1Ag0-0.01O1.9-2) **378248-75-0**, Indium manganese oxide (In0-0.01Mn0.99-1O1.9-2) **378248-76-1**, Manganese tin oxide (Mn0.99-1Sn0-0.01O1.9-2) **378248-77-2**, Barium manganese oxide (Ba0-0.01Mn0.99-1O1.9-2) **378248-78-3**, Cerium manganese oxide (Ce0-0.01Mn0.99-1O1.9-2) **378248-79-4**, Hafnium manganese oxide (Hf0-0.01Mn0.99-1O1.9-2) **378248-80-7**, Manganese tantalum oxide (Mn0.99-1Ta0-0.01O1.9-2) **378248-81-8**, Manganese rhenium oxide (Mn0.99-1Re0-0.01O1.9-2) **378248-82-9**, Manganese osmium oxide (Mn0.99-1Os0-0.01O1.9-2) **378248-83-0**, Iridium manganese oxide (Ir0-0.01Mn0.99-1O1.9-2) **378248-84-1**, Manganese platinum oxide (Mn0.99-1Pt0-0.01O1.9-2) **378248-85-2**, Gold manganese oxide (Au0-0.01Mn0.99-1O1.9-2) **378248-86-3**, Bismuth manganese oxide (Bi0-0.01Mn0.99-1O1.9-2) **378248-87-4**, Aluminum manganese nickel oxide (Al0-0.01Mn0.99-1Ni0-0.01O1.9-2) **378248-88-5**, Manganese

nickel borate oxide (Mn0.99-1Ni0-0.01(BO3)0-0.01O1.87-2) **378248-89-6**, Manganese zirconium borate oxide (Mn0.99-1Zr0-0.01(BO3)0-0.01O1.87-2) **378248-90-9**, Manganese titanium borate oxide (Mn0.99-1Ti0-0.01(BO3)0-0.01O1.87-2) **378248-91-0**, Hafnium manganese borate oxide (Hf0-0.01Mn0.99-1(BO3)0-0.01O1.87-2) **378248-92-1**, Aluminum manganese tantalum oxide (Al0-0.01Mn0.99-1Ta0-0.01O1.9-2) **378248-93-2**, Manganese tantalum borate oxide (Mn0.99-1Ta0-0.01(BO3)0-0.01O1.87-2) **378248-94-3**, Manganese niobium borate oxide (Mn0.99-1Nb0-0.01(BO3)0-0.01O1.87-2) **378248-95-4**, Aluminum manganese niobium oxide (Al0-0.01Mn0.99-1Nb0-0.01O1.9-2) **378248-96-5**, Manganese niobium zirconium oxide (Mn0.99-1Nb0-0.01Zr0-0.01O1.9-2) **378248-97-6**, Aluminum manganese zirconium oxide (Al0-0.01Mn0.99-1Zr0-0.01O1.9-2) **378248-98-7**, Gallium manganese zirconium oxide (Ga0-0.01Mn0.99-1Zr0-0.01O1.9-2) **378248-99-8**, Cerium manganese zirconium oxide (Ce0-0.01Mn0.99-1Zr0-0.01O1.9-2) **378249-00-4**, Hafnium manganese zinc oxide (Hf0-0.01Mn0.99-1Zn0-0.01O1.9-2) **378249-01-5**, Cerium manganese borate oxide (Ce0-0.01Mn0.99-1(BO3)0-0.01O1.87-2) **378249-02-6**, Gallium manganese borate oxide (Ga0-0.01Mn0.99-1(BO3)0-0.01O1.87-2) **378249-03-7**, Cerium hafnium manganese oxide (Ce0-0.01Hf0-0.01Mn0.99-1O1.9-2) **378249-04-8**, Aluminum manganese borate oxide (Al0-0.01Mn0.99-1(BO3)0-0.01O1.87-2) **378249-05-9**, Aluminum gallium manganese oxide (Al0-0.01Ga0-0.01Mn0.99-1O1.9-2) **378249-06-0**, Manganese zinc borate oxide (Mn0.99-1Zn0-0.01(BO3)0-0.01O1.87-2) **378249-07-1**, Cerium manganese zinc oxide (Ce0-0.01Mn0.99-1Zn0-0.01O1.9-2) **378249-08-2**, Cerium gallium manganese oxide (Ce0-0.01Ga0-0.01Mn0.99-1O1.9-2) **378249-09-3**, Aluminum hafnium manganese oxide (Al0-0.01Hf0-0.01Mn0.99-1O1.9-2) **378249-10-6**, Hafnium manganese zirconium oxide (Hf0-0.01Mn0.99-1Zr0-0.01O1.9-2) **378249-11-7**, Manganese zinc zirconium oxide (Mn0.99-1Zn0-0.01Zr0-0.01O1.9-2) **378249-12-8**, Gallium hafnium manganese oxide (Ga0-0.01Hf0-0.01Mn0.99-1O1.9-2) **378249-13-9**, Gallium manganese nickel oxide (Ga0-0.01Mn0.99-1Ni0-0.01O1.9-2) **378249-14-0**, Manganese nickel zinc oxide (Mn0.99-1Ni0-0.01Zn0-0.01O1.9-2) **378249-15-1**, Gallium manganese silver oxide (Ga0-0.01Mn0.99-1Ag0-0.01O1.9-2) **378249-16-2**, Indium manganese nickel oxide (In0-0.01Mn0.99-1Ni0-0.01O1.9-2) **378249-17-3**, Hafnium manganese nickel oxide (Hf0-0.01Mn0.99-1Ni0-0.01O1.9-2) **378249-18-4**, Indium manganese zirconium oxide (In0-0.01Mn0.99-1Zr0-0.01O1.9-2) **378249-19-5**, Manganese silver borate oxide (Mn0.99-1Ag0-0.01(BO3)0-0.01O1.87-2) **378249-20-8**, Aluminum manganese zinc oxide (Al0-0.01Mn0.99-1Zn0-0.01O1.9-2) **378249-21-9**, Gallium manganese zinc oxide (Ga0-0.01Mn0.99-1Zn0-0.01O1.9-2) **378249-22-0**, Chromium manganese borate oxide (Cr0-0.01Mn0.99-1(BO3)0-0.01O1.87-2) **378249-23-1**, Chromium manganese zinc oxide (Cr0-0.01Mn0.99-1Zn0-0.01O1.9-2) **378249-24-2**, Aluminum chromium manganese oxide (Al0-0.01Cr0-0.01Mn0.99-1O1.9-2) **378249-25-3**, Chromium indium manganese oxide (Cr0-0.01In0-0.01Mn0.99-1O1.9-2) **378249-26-4**, Chromium gallium manganese oxide (Cr0-0.01Ga0-0.01Mn0.99-1O1.9-2) **378249-27-5**, Chromium hafnium manganese oxide (Cr0-0.01Hf0-0.01Mn0.99-1O1.9-2) **378249-28-6**, Manganese nickel silver oxide (Mn0.99-1Ni0-0.01Ag0-0.01O1.9-2) **378249-29-7**, Aluminum

manganese silver oxide (Al0-0.01Mn0.99-1Ag0-0.01O1.9-2) **378249-30-0**, Chromium manganese silver oxide (Cr0-0.01Mn0.99-1Ag0-0.01O1.9-2) **378249-31-1**, Cerium chromium manganese oxide (Ce0-0.01Cr0-0.01Mn0.99-1O1.9-2) **378249-32-2**, Chromium manganese zirconium oxide (Cr0-0.01Mn0.99-1Zr0-0.01O1.9-2) **378249-33-3**, Manganese silver zirconium oxide (Mn0.99-1Ag0-0.01Zr0-0.01O1.9-2) **378249-34-4**, Cerium manganese silver oxide (Ce0-0.01Mn0.99-1Ag0-0.01O1.9-2) **378249-35-5**, Chromium copper manganese oxide (Cr0-0.01Cu0-0.01Mn0.99-1O1.9-2) **378249-36-6**, Copper manganese zirconium oxide (Cu0-0.01Mn0.99-1Zr0-0.01O1.9-2) **378249-37-7**, Hafnium manganese silver oxide (Hf0-0.01Mn0.99-1Ag0-0.01O1.9-2) **378249-38-8**, Manganese silver zinc oxide (Mn0.99-1Ag0-0.01Zn0-0.01O1.9-2) **378249-39-9**, Manganese ruthenium zirconium oxide (Mn0.99-1Ru0-0.01Zr0-0.01O1.9-2) **378249-40-2**, Cerium manganese ruthenium oxide (Ce0-0.01Mn0.99-1Ru0-0.01O1.9-2) **378249-41-3**, Hafnium manganese ruthenium oxide (Hf0-0.01Mn0.99-1Ru0-0.01O1.9-2) **378249-42-4**, Aluminum manganese ruthenium oxide (Al0-0.01Mn0.99-1Ru0-0.01O1.9-2) 378249-43-5 378249-44-6, Aluminum cerium manganese titanium oxide (Al0-0.01Ce0-0.01Mn0.99-1Ti0-0.01O1.9-2) 378249-45-7 378249-46-8, Aluminum manganese nickel titanium oxide (Al0-0.01Mn0.99-1Ni0-0.01Ti0-0.01O1.9-2) 378249-47-9, Aluminum cerium manganese nickel oxide (Al0-0.01Ce0-0.01Mn0.99-1Ni0-0.01O1.9-2) 378249-49-1 378249-50-4, Hafnium manganese nickel zirconium oxide (Hf0-0.01Mn0.99-1Ni0-0.01Zr0-0.01O1.9-2) 378249-51-5, Hafnium manganese zinc zirconium oxide (Hf0-0.01Mn0.99-1Zn0-0.01Zr0-0.01O1.9-2) 378249-52-6 378249-53-7 378249-54-8 **378253-12-4**, Antimony manganese oxide (Sb0-0.01Mn0.99-1O1.9-2) **378253-13-5**, Chromium manganese nickel oxide (Cr0-0.01Mn0.99-1Ni0-0.01O1.9-2) 378253-14-6, Cerium manganese nickel titanium oxide (Ce0-0.01Mn0.99-1Ni0-0.01Ti0-0.01O1.9-2)

(**doped manganese** dioxides for use in **battery electrodes**)

L31 ANSWER 9 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:851546 HCAPLUS Full-text
DOCUMENT NUMBER: 135:374185
TITLE: Solid oxide fuel cells with symmetric composite **electrodes**
INVENTOR(S): Brown, Jacqueline L.; St. Julien, Dell J.; Badding, Michael E.; Ketcham, Thomas D.
PATENT ASSIGNEE(S): Corning Inc., USA
SOURCE: PCT Int. Appl., 29 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001089010	A1	20011122	WO 2001-US9744 <--	20010326
W: JP				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
EP 1293004	A1	20030319	EP 2001-924356 <--	20010326

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR

US 2001044043	A1	20011122	US 2001-858125 <--	20010515
US 6630267	B2	20031007		
TW 517406	B	20030111	TW 2001-90113128 <--	20010529
PRIORITY APPLN. INFO.:			US 2000-205353P <--	P 20000518
			WO 2001-US9744 <--	W 20010326

ED Entered STN: 23 Nov 2001

AB The present invention relates to **electrode**/ **electrolyte** assemblies for solid oxide fuel cells comprising a thin **electrolyte** sheet interposed between opposite **electrodes**, and wherein the pos. air **electrode** (**cathode**) and neg. fuel **electrode** (**anode**) are composed of similar electronically conductive metal phases and stabilizing ceramic phases, and wherein the **anode** exhibits both good oxidation resistance and good catalytic activity toward fuel oxidation

IT **59707-46-9**, Lanthanum manganese strontium oxide
(solid oxide fuel cells with sym. composite **electrodes**)

RN 59707-46-9 HCAPLUS

CN Lanthanum manganese strontium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Sr	x	7440-24-6
Mn	x	7439-96-5
La	x	7439-91-0

IC ICM H01M004-86
ICS H01M008-12

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST fuel cell sym composite **electrode**

IT Group VA element compounds
(bismuthates; solid oxide fuel cells with sym. composite **electrodes**)

IT Cermets
(nickel; solid oxide fuel cells with sym. composite **electrodes**)

IT Ceramics
Fuel cell **electrodes**
Oxidation catalysts
Screen printing
Solid state fuel cells
(solid oxide fuel cells with sym. composite **electrodes**)

IT Hafnia
(stabilized; solid oxide fuel cells with sym. composite **electrodes**)

IT Silver alloy, base
(solid oxide fuel cells with sym. composite **electrodes**)

IT 7440-02-0, Nickel, uses
(cermets; solid oxide fuel cells with sym. composite **electrodes**)

IT 1305-78-8, Calcia, uses 1308-87-8, Dysprosium oxide 1309-48-4, Magnesia, uses 1312-43-2, Indium oxide 1313-97-9, Neodymia 1314-36-9, Yttrium oxide, uses 1332-29-2, Tin oxide 12060-58-1, Samarium oxide 12061-16-4, Erbium oxide 12064-62-9, Gadolinium

oxide 12627-00-8, Niobium oxide 12651-43-3, Ytterbium oxide 12738-76-0, Terbium oxide 12770-85-3, Europium oxide 13463-67-7, Titanium oxide, uses 37200-34-3, Scandium oxide 39455-61-3, Holmium oxide 39455-67-9, Lutetium oxide 39455-81-7, Thulium oxide 59763-75-6, Tantalum oxide
(**dopant**; solid oxide fuel cells with sym. composite **electrodes**)

IT 1344-28-1, Alumina, uses 7440-22-4, Silver, uses 7440-54-2, Gadolinium, uses 7440-56-4, Germanium, uses 12735-99-8 54340-10-2 **59707-46-9**, Lanthanum manganese strontium oxide 66174-72-9 113482-02-3, Tz-3y
(solid oxide fuel cells with sym. composite **electrodes**)

IT 1314-35-8, Tungsten oxide, uses 11098-99-0, Molybdenum oxide
(solid oxide fuel cells with sym. composite **electrodes**)

IT 1333-74-0, Hydrogen, uses
(solid oxide fuel cells with sym. composite **electrodes**)

IT 1314-23-4, Zirconia, uses
(stabilized; solid oxide fuel cells with sym. composite **electrodes**)

IT 1306-38-3, Ceria, uses 7440-69-9, Bismuth, uses
(zirconia with; solid oxide fuel cells with sym. composite **electrodes**)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 10 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:409979 HCAPLUS Full-text
DOCUMENT NUMBER: 135:98050
TITLE: Activity of SrO in La1-xSrxMnO3-y (x = 0.065, 0.10, 0.15 or 0.20) by a solid state EMF method
AUTHOR(S): Arul Antony, S.; Swaminathan, K.; Nagaraja, K. S.; Sreedharan, O. M.
CORPORATE SOURCE: Department of Chemistry, Loyola College, Chennai, India
SOURCE: Journal of Alloys and Compounds (**2001**), 322(1-2), 113-119
CODEN: JALCEU; ISSN: 0925-8388
PUBLISHER: Elsevier Science S.A.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 07 Jun 2001

AB Thermodn. activity of SrO, aSrO, in lanthanum manganite doped with SrO (LSM) with the stoichiometry La1-xSrxMnO3-y (where x = 0.065, 0.10, 0.15 or 0.20) was measured as a function of temperature over the range of .apprx.750-1000 K by employing an EMF technique with CaF2 or SrF2 as the fluoride ion conducting **electrolyte** under an atmospheric of oxygen at unit fugacity. When Pt/SrO,SrF2,O2 was used as the reference **electrode** for the test **electrode** Pt/0.15 LSM, SrF2,O2, sintered SrF2 was used as the **electrolyte**. In all other galvanic cells, both the test and reference **electrodes** contained LSM with different **dopant** concns. The SrO potential .hivin.Δ.hivin.GSrO, log aSrO and the corresponding activity coeffs. (γSrO) for the four solid solns. were determined and log aSrO was found to exhibit decreasing neg. deviation from ideality with increasing SrO content. The .hivin.Δ.hivin.GSrO for these compns. could be represented as -4.81 - 0.03360T (K) for 0.065 LSM, -5.68 - 0.02818T for 0.10 LSM, -9.84 - 0.01950T for 0.15 LSM and -11.42 - 0.01360T for 0.20 LSM in terms of kJ mol-1.

IT **108916-22-9D**, Lanthanum manganese strontium oxide (La0.8MnSr0.2O3), oxygen-deficient **110781-51-6D**, Lanthanum

manganese strontium oxide (La0.9MnSr0.103), oxygen-deficient **118819-60-6D**, Lanthanum manganese strontium oxide (La0.94MnSr0.0603), oxygen-deficient **120605-82-5D**, Lanthanum manganese strontium oxide (La0.85MnSr0.1503), oxygen-deficient
(activity of SrO in La1-xSrxMnO3-y determined by solid state EMF method)

RN 108916-22-9 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.8MnSr0.203) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.2	7440-24-6
Mn	1	7439-96-5
La	0.8	7439-91-0

RN 110781-51-6 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.9MnSr0.103) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.1	7440-24-6
Mn	1	7439-96-5
La	0.9	7439-91-0

RN 118819-60-6 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.94MnSr0.0603) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.06	7440-24-6
Mn	1	7439-96-5
La	0.94	7439-91-0

RN 120605-82-5 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.85MnSr0.1503) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.15	7440-24-6
Mn	1	7439-96-5
La	0.85	7439-91-0

CC 69-2 (Thermodynamics, Thermochemistry, and Thermal Properties)
Section cross-reference(s): **72**

IT 1314-11-0, Strontium oxide (SrO), properties **108916-22-9D**, Lanthanum manganese strontium oxide (La0.8MnSr0.203), oxygen-deficient **110781-51-6D**, Lanthanum manganese strontium oxide (La0.9MnSr0.103), oxygen-deficient **118819-60-6D**, Lanthanum manganese strontium oxide (La0.94MnSr0.0603), oxygen-deficient **120605-82-5D**, Lanthanum manganese strontium oxide (La0.85MnSr0.1503), oxygen-deficient

(activity of SrO in La1-xSrxMnO3-y determined by solid state EMF method)
REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 11 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:210228 HCAPLUS Full-text
DOCUMENT NUMBER: 134:240115
TITLE: Lithium nickel oxide-based cathode material for secondary lithium battery and its manufacture
INVENTOR(S): Yamamoto, Hiroshi; Terao, Koichi; Yonemura, Koji; Kamei, Kazuto
PATENT ASSIGNEE(S): Sumitomo Metal Industries, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001076724	A	20010323	JP 1999-249016 <--	19990902
PRIORITY APPLN. INFO.:			JP 1999-249016 <--	19990902

ED Entered STN: 23 Mar 2001
AB The cathode material comprise LixNi1-yMyO2 (M = Co, Mn, Fe, Al; 0.95 ≤ x < 1.1; yr = 0-0.5) containing Z oxide (Z = B and/or P) with the atomic ratio of Z/(Ni + M) 0.001-0.1, in which Z is localized in amorphous oxides at the grain boundary to show the Li occupation at Li(3a) site ≥95%. The anode material is manufactured by blending (A) Ni compds., mixts. of Ni compds. and M compds., and/or M-Ni solid solns. with (B) Z (compds.), calcining the mixts., mixing thus obtained oxides with Li compds., and firing the mixts. in an oxidizing atmospheric The cathode material shows improved thermal stability with keeping high capacity.
IT **166092-55-3**, Manganese nickel hydroxide (Mn0.1Ni0.9(OH)2)
(manufacture of lithium nickel oxide-based cathode material for secondary lithium battery)
RN 166092-55-3 HCAPLUS
CN Manganese nickel hydroxide (Mn0.1Ni0.9(OH)2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	2	14280-30-9
Ni	0.9	7440-02-0
Mn	0.1	7439-96-5

IC ICM H01M004-58
ICS H01M004-02
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57
ST lithium nickel oxide battery cathode boron **doping**; phosphorus **doping** lithium nickel oxide battery cathode
IT **Battery cathodes**
(manufacture of lithium nickel oxide-based cathode material for secondary lithium battery)
IT 1310-65-2, Lithium hydroxide 12054-48-7, Nickel hydroxide (Ni(OH)2) 21041-93-0, Cobalt hydroxide (Co(OH)2) 147098-69-9, Cobalt nickel

hydroxide (Co0.1Ni0.9(OH)2) **166092-55-3**, Manganese nickel hydroxide (Mn0.1Ni0.9(OH)2) 177535-90-9, Aluminum nickel hydroxide (Al0.1Ni0.9(OH)2) 180694-36-4, Iron nickel hydroxide (Fe0.1Ni0.9(OH)2)
(manufacture of lithium nickel oxide-based cathode material for secondary lithium battery)

L31 ANSWER 12 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:911597 HCAPLUS Full-text
DOCUMENT NUMBER: 134:59131
TITLE: Performance enhancing additives for **batteries**
INVENTOR(S): Jin, Zhihong; Kennedy, John H.
PATENT ASSIGNEE(S): Eveready Battery Company, Inc., USA
SOURCE: PCT Int. Appl., 32 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000079622	A1	20001228	WO 2000-US17561 <--	20000621
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1194965	A1	20020410	EP 2000-941732 <--	20000621
EP 1194965	B1	20030903		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2003502825	T	20030121	JP 2001-505086 <--	20000621
AT 249101	T	20030915	AT 2000-941732 <--	20000621
US 6818347	B1	20041116	US 2001-787858 <--	20010322

PRIORITY APPLN. INFO.:	US 1999-140590P <--	P	19990623
	US 2000-212295P <--	P	20000617
	WO 2000-US17561 <--	W	20000621

ED Entered STN: 29 Dec 2000
AB Alkaline **battery** cells comprising an **anode**, a **cathode**, a separator between the **anode** and the **cathode**, and an **electrolyte** are provided with an n-type metal oxide additive that improves electrochem. performance. The n-type metal oxide additive is either a doped metal oxide comprising a metal oxide modified by incorporation of a **dopant** , or a reduced metal oxide. The metal oxide may be selected from the group consisting of BaTiO3, K2TiO3, CoTiO3, SrTiO3, CaTiO3, MgTiO3, SiO2, CaO, TiO2, CoO, Co3O4, ZnO, SnO, SnO2, PbO2, Bi2O3, Bi2O3.3ZrO3, Bi12TiO20, Fe2O3-TiO2, Nb2O5, CaWO4, ZnMn2O4, and K2Cr2O7. Examples of **dopant**

disclosed are: NbO2, Nb2O5, Ta2O5, WO3, GeO2, ZrO2, SnO2, ThO2, Fe2O3, In2O3, LiNiO2, and P2O5, In2O3, Sb2O5.

IT **12032-94-9**, Zinc manganese oxide ZnMn2O4
(performance enhancing additives for **batteries**)

RN 12032-94-9 HCAPLUS

CN Manganese zinc oxide (Mn2ZnO4) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	4	17778-80-2
Zn	1	7440-66-6
Mn	2	7439-96-5

IC ICM H01M004-62
ICS H01M006-16

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST **battery** performance enhancing additive metal oxide

IT **Battery anodes**
Battery cathodes
Primary **batteries**
(performance enhancing additives for **batteries**)

IT Oxides (inorganic), uses
(performance enhancing additives for **batteries**)

IT 1313-13-9, Manganese dioxide, uses
(performance enhancing additives for **batteries**)

IT 1304-76-3, Bismuth oxide bi2o3, uses 1305-78-8, Calcia, uses 1307-96-6, Cobalt oxide coo, uses 1308-06-1, Cobalt oxide co3o4 1309-60-0, Lead dioxide 1313-96-8, Niobia 1314-13-2, Zinc oxide zno, uses 7631-86-9, Silica, uses 7778-50-9, Potassium dichromate 7790-75-2, Calcium tungstate cawo4 12017-01-5, Cobalt titanium oxide cotio3 12023-27-7, Iron titanium oxide (Fe2TiO5) 12030-97-6, Potassium titanium oxide k2tio3 12032-30-3, Magnesium titanium oxide mgtio3 **12032-94-9**, Zinc manganese oxide ZnMn2O4 12047-27-7, Barium titanium oxide batio3, uses 12048-52-1, Bismuth zirconium oxide Bi2Zr3O9 12049-50-2, Calcium titanium oxide catio3 12060-59-2, Strontium titanium oxide srtio3 12441-73-5, Bismuth titanium oxide Bi12TiO20 13463-67-7, Titania, uses 18282-10-5, Tin dioxide 21651-19-4, Tin oxide sno
(performance enhancing additives for **batteries**)

IT 1309-37-1, Ferric oxide, uses 1310-53-8, Germania, uses 1310-58-3, Potassium hydroxide (K(OH)), uses 1312-43-2, Indium oxide in2o3 1314-20-1, Thoria, uses 1314-23-4, Zirconia, uses 1314-35-8, Tungsten trioxide, uses 1314-56-3, Phosphorus pentoxide, uses 1314-61-0, Tantalum pentoxide 7440-66-6, Zinc, uses 12031-65-1, Lithium nickel oxide linio2
(performance enhancing additives for **batteries**)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 13 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2000:775682 HCAPLUS Full-text

DOCUMENT NUMBER: 134:48508

TITLE: **Doping** effects on the physicochemical and electrochemical properties of lanthanum manganite

AUTHOR(S): Tikhonova, L. A.; Zhuk, P. P.; Poluyan, A. F.; Al'fer, S. A.; Voropaev, A. G.; Glushko, A. N.

CORPORATE SOURCE: Research Institute of Physicochemical Problems, Belarussian State University, Minsk, 220080, Belarus
SOURCE: Inorganic Materials (Translation of Neorganicheskie Materialy) (2000), 36(10), 1036-1042
CODEN: INOMAF; ISSN: 0020-1685
PUBLISHER: MAIK Nauka/Interperiodica Publishing
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 06 Nov 2000

AB The structural, thermal, elec., and electrochem. properties of La0.7Ca0.3Mn1-x(Co,Ni)xO3 and La0.6Sr0.4Mn1-x(Co,Ni)xO3 (x = 0, 0.02, 0.05, 0.1) **electrode** materials were studied. **Doping** of the cubic perovskites with Co or Ni increases the fraction of Mn4+ ions, up to 49% in La0.7Ca0.3Mn0.9Co0.1O3 and 57% in La0.6Sr0.4Mn0.95Co0.05O3. The 300-K conductivity of La0.7Ca0.3Mn1-xNixO3,passes through a maximum at x = 0.05, while that of La0.6Sr0.4Mn1-xCoxO3 decreases steadily with increasing x. In the range 300-1100 K, the conductivity of the Ca-containing manganites exhibits semiconducting behavior, whereas that of the Sr-containing materials shows metallic behavior. No phase transformations were detected in this temperature range. In the four systems, the thermal-expansion coeffs. are virtually independent of x. In both undoped and doped **electrode** materials, the resistance parameter ρ/d of **electrode** layers on solid-**electrolyte** substrates shows semiconducting behavior at 300-1100 K and oxygen partial pressures from 102 to 105 Pa. With increasing oxygen partial pressure or **electrode**-layer thickness (d = 15-100 mg/cm2), ρ/d decreases. The optimal **electrode**-layer thickness is .apprx.50 mg/cm2. The introduction of Co or Ni into the **electrode** materials decreases the polarization resistance of the **electrode** layer in gas/**electrode**/ **electrolyte** systems. Compns. ensuring the lowest polarization resistance were found.

IT **108916-21-8**, Lanthanum manganese strontium oxide (La0.6MnSr0.4O3)
(cobalt or nickel **doping** effect on structural, thermal, elec., and electrochem. properties of **electrode** materials of)

RN 108916-21-8 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.6MnSr0.4O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.4	7440-24-6
Mn	1	7439-96-5
La	0.6	7439-91-0

CC 72-2 (**Electrochemistry**)
Section cross-reference(s): 57, 76, 78

ST **doping** effect physicochem electrochem property lanthanum manganite; cobalt **doping** lanthanum **manganese** calcium strontium oxide prepn property; nickel **doping** lanthanum **manganese** calcium strontium oxide prepn property; calcium lanthanum manganese cobalt nickel oxide prepn property; strontium lanthanum manganese strontium cobalt nickel oxide prepn property; **electrode** calcium strontium lanthanum manganese cobalt nickel oxide; cond calcium strontium lanthanum manganese cobalt nickel oxide

IT Perovskite-type crystals
(**doping** effects on physicochem. and electrochem. properties of lanthanum manganite)

IT Activation energy
(for conduction of calcium lanthanum manganese oxide and lanthanum manganese strontium oxide with and without cobalt or nickel **doping**)
IT Electric conductivity
Electrodes
Polarization resistance
Thermal expansion
(of calcium lanthanum manganese oxide and lanthanum manganese strontium oxide with and without cobalt or nickel **doping**)
IT **Doping**
(of cobalt or nickel by calcium lanthanum manganese oxide and lanthanum manganese strontium oxide)
IT 112510-19-7P, Calcium lanthanum manganese oxide (Ca0.3La0.7MnO3)
(cobalt and nickel **doping** effect on preparation, structural, thermal, elec., and electrochem. properties of **electrode** materials of)
IT **108916-21-8**, Lanthanum manganese strontium oxide (La0.6MnSr0.4O3)
(cobalt or nickel **doping** effect on structural, thermal, elec., and electrochem. properties of **electrode** materials of)
IT 7440-02-0, Nickel, properties 7440-48-4, Cobalt, properties
(**doping** of calcium lanthanum manganese oxide and lanthanum manganese strontium oxide by)
IT 123921-92-6P, Lanthanum manganese nickel strontium oxide (La0.6Mn0.98Ni0.02Sr0.4O3) 123921-93-7P, Lanthanum manganese nickel strontium oxide (La0.6Mn0.95Ni0.05Sr0.4O3) 130679-99-1P, Cobalt lanthanum manganese strontium oxide (Co0.02La0.6Mn0.98Sr0.4O3) 155732-12-0P, Calcium lanthanum manganese nickel oxide (Ca0.3La0.7Mn0.95Ni0.05O3) 165131-81-7P, Calcium lanthanum manganese nickel oxide (Ca0.3La0.7Mn0.9Ni0.1O3) 165131-82-8P, Calcium cobalt lanthanum manganese oxide (Ca0.3Co0.1La0.7Mn0.9O3) 165131-84-0P, Calcium cobalt lanthanum manganese oxide (Ca0.3Co0.02La0.7Mn0.98O3) 165131-85-1P, Calcium lanthanum manganese nickel oxide (Ca0.3La0.7Mn0.98Ni0.2O3) 194718-44-0P, Calcium cobalt lanthanum manganese oxide (Ca0.3Co0.05La0.7Mn0.95O3) 201422-70-0P, Cobalt lanthanum manganese strontium oxide (Co0.05La0.6Mn0.95Sr0.4O3)
(preparation, structural, thermal, elec., and electrochem. properties of **electrode** materials of)
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 14 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:556860 HCAPLUS Full-text
DOCUMENT NUMBER: 133:197164
TITLE: Effect of Co **dopant** on the (La,Sr)MnO3 **cathode** for solid oxide fuel cell
AUTHOR(S): Kim, Jae-Dong; Kim, Goo-Dae; Lee, Ki-Tae
CORPORATE SOURCE: Ceramic Processing Research Center, Korea Institute of Science and Technology, Seoul, 136-791, S. Korea
SOURCE: Han'guk Seramik Hakhoechi (**2000**), 37(6), 612-616
CODEN: HSHAF7
PUBLISHER: Korean Ceramic Society
DOCUMENT TYPE: Journal
LANGUAGE: Korean
ED Entered STN: 14 Aug 2000

AB The effect of Co **dopant** on the (La,Sr)MnO3 **cathode** (LSMC) was investigated. La2Zr2O7 and SrZrO3 were formed as the reaction products between YSZ and LSMC. The reactivity of LSMC with YSZ increased with increasing Co content. However, the **cathodic** polarization resistance decreased with increasing Co **doping**. Therefore, **doping** Co at **Mn** site in the (La,Sr)MnO3 **cathode** was effective on controlling the polarization resistance of the **cathode**. The polarization property of LSMC-YSZ composite (60:40 wt%) **cathode** was better than that of LSMC single **cathode**.

IT **106390-66-3**, Lanthanum strontium manganate La0.7Sr0.3MnO3
(**cathode**, fuel cell; effects of Co **dopant** on the performance of (La, Sr)MnO3 as **cathode** for solid oxide fuel cell)

RN 106390-66-3 HCAPLUS

CN Lanthanum manganese strontium oxide (La0.7MnSr0.3O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.3	7440-24-6
Mn	1	7439-96-5
La	0.7	7439-91-0

CC 57-2 (Ceramics)
Section cross-reference(s): **52**, 76

ST lanthanum strontium manganate **cathode** property cobalt **dopant** fuel cell

IT **Cathodic** polarization
(effects of Co **dopant** on the performance of (La, Sr)MnO3 as **cathode** for solid oxide fuel cell)

IT **Cathodes**
(lanthanum strontium manganate; effects of Co **dopant** on the performance of (La, Sr)MnO3 as **cathode** for solid oxide fuel cell)

IT **106390-66-3**, Lanthanum strontium manganate La0.7Sr0.3MnO3 288855-62-9 288855-63-0 288855-64-1 288855-66-3 288855-67-4 288855-68-5
(**cathode**, fuel cell; effects of Co **dopant** on the performance of (La, Sr)MnO3 as **cathode** for solid oxide fuel cell)

IT 64417-98-7, Yttrium Zirconium oxide
(**electrolyte**, fuel cell; effects of Co **dopant** on the performance of (La, Sr)MnO3 as **cathode** for solid oxide fuel cell)

IT 12031-48-0, Lanthanum zirconium oxide (La2Zr2O7) 12036-39-4, Strontium zirconium oxide (SrZrO3)
(reaction product; effects of Co **dopant** on the performance of (La, Sr)MnO3 as **cathode** for solid oxide fuel cell)

L31 ANSWER 15 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:504820 HCAPLUS Full-text
DOCUMENT NUMBER: 133:122705
TITLE: O2-type Li2/3[Ni1/3Mn2/3]O2: a new layered cathode material for rechargeable lithium batteries. II. Structure, composition, and properties
AUTHOR(S): Paulsen, J. M.; Dahn, J. R.
CORPORATE SOURCE: Department of Physics, Dalhousie University, Halifax, NS, B3H 3J5, Can.
SOURCE: Journal of the Electrochemical Society (

2000), 147(7), 2478-2485
CODEN: JESOAN; ISSN: 0013-4651
PUBLISHER: Electrochemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 26 Jul 2000
AB Li2/3[Ni1/3Mn2/3]O2 is prepared from the corresponding P2-Na2/3[Ni1/3Mn2/3]O2 by ion exchange. This work investigates the correlation between structure, composition, and electrochem. properties; Crystalline Li2/3[Ni1/3Mn2/3]O2 is a layered oxide with the T2 structure. Small deviations from the Ni1/3Mn2/3 stoichiometry cause less ordered samples showing T2-O2 intergrowth structures. Larger deviations (Ni0.25Mn0.75) or **doping** with 15% Co lead to stacking-faulted O2 structures instead of T2. Best electrochem. results are obtained if the sample has a slightly disordered T2 structure. The electrochem. properties of O2-Li2/3[Ni1/3Mn2/3]O2 are compared to those of related phases with the alternative O3 structure. Only O2-type Lix[Ni1/3Mn2/3]O2 can be cycled with little loss of capacity as a function of cycle number
IT **285978-95-2P**, Manganese nickel sodium oxide (Mn0.67Ni0.33Na0.67O2) **285979-03-5P**, Manganese nickel sodium oxide (Mn0.5Ni0.5NaO2) **285979-04-6P**, Manganese nickel sodium oxide (Mn0.56Ni0.44Na0.89O2) **285979-05-7P**, Manganese nickel sodium oxide (Mn0.61Ni0.39Na0.78O2) **285979-07-9P**, Manganese nickel sodium oxide (Mn0.67Ni0.33NaO2) **285979-09-1P**, Manganese nickel sodium oxide (Mn0.67Ni0.33Na0.83O2)
(structure, composition and properties of lithium nickel manganese oxide layered cathode material for rechargeable lithium batteries)
RN 285978-95-2 HCAPLUS
CN Manganese nickel sodium oxide (Mn0.67Ni0.33Na0.67O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Na	0.67	7440-23-5
Ni	0.33	7440-02-0
Mn	0.67	7439-96-5

RN 285979-03-5 HCAPLUS
CN Manganese nickel sodium oxide (Mn0.5Ni0.5NaO2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Na	1	7440-23-5
Ni	0.5	7440-02-0
Mn	0.5	7439-96-5

RN 285979-04-6 HCAPLUS
CN Manganese nickel sodium oxide (Mn0.56Ni0.44Na0.89O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Na	0.89	7440-23-5
Ni	0.44	7440-02-0
Mn	0.56	7439-96-5

RN 285979-05-7 HCAPLUS
CN Manganese nickel sodium oxide (Mn0.61Ni0.39Na0.78O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Na	0.78	7440-23-5
Ni	0.39	7440-02-0
Mn	0.61	7439-96-5

RN 285979-07-9 HCAPLUS
CN Manganese nickel sodium oxide (Mn0.67Ni0.33NaO2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Na	1	7440-23-5
Ni	0.33	7440-02-0
Mn	0.67	7439-96-5

RN 285979-09-1 HCAPLUS
CN Manganese nickel sodium oxide (Mn0.67Ni0.33Na0.83O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Na	0.83	7440-23-5
Ni	0.33	7440-02-0
Mn	0.67	7439-96-5

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT **Battery cathodes**
(structure, composition and properties of lithium nickel manganese oxide layered cathode material for rechargeable lithium batteries)
IT 128975-24-6P, Lithium manganese nickel oxide LiMn0.5Ni0.5O2
259190-87-9P, Lithium manganese nickel oxide Li0.67Mn0.67Ni0.33O2
285978-95-2P, Manganese nickel sodium oxide (Mn0.67Ni0.33Na0.67O2) 285978-96-3P, Lithium manganese nickel oxide (Li0.67Mn0.75Ni0.25O2) 285978-97-4P, Lithium manganese nickel oxide (Li0.67Mn0.7Ni0.3O2) 285978-99-6P, Cobalt lithium manganese nickel oxide (Co0.17Li0.67Mn0.67Ni0.17O2) 285979-02-4P, Cobalt lithium manganese nickel oxide (Co0.17Li0.67Mn0.58Ni0.25O2)
285979-03-5P, Manganese nickel sodium oxide (Mn0.5Ni0.5NaO2)
285979-04-6P, Manganese nickel sodium oxide (Mn0.56Ni0.44Na0.89O2) **285979-05-7P**, Manganese nickel sodium oxide (Mn0.61Ni0.39Na0.78O2) **285979-07-9P**, Manganese nickel sodium oxide (Mn0.67Ni0.33NaO2) **285979-09-1P**, Manganese nickel sodium oxide (Mn0.67Ni0.33Na0.83O2)
(structure, composition and properties of lithium nickel manganese oxide layered cathode material for rechargeable lithium batteries)
REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 16 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:445432 HCAPLUS Full-text
DOCUMENT NUMBER: 133:156793
TITLE: Electrochemistry of the layered manganese dioxides: AxMn1-y(Co,Ni,Fe)yO2 (A = Li, K) rate effects
AUTHOR(S): Zhang, Fan; Whittingham, M. Stanley
CORPORATE SOURCE: Department of Chemistry and Institute for Materials Research, State University of New York at Binghamton, Binghamton, NY, 13902-6016, USA
SOURCE: Electrochemical and Solid-State Letters (2000), 3(7), 309-311
CODEN: ESLEF6; ISSN: 1099-0062
PUBLISHER: Electrochemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 04 Jul 2000
AB Cobalt, iron, and nickel can be doped into the layered alkali manganese dioxides, AxMn1-yMyO2 for A = K, Na, or Li and M = Co, Fe, or Ni, during the hydrothermal synthesis from the alkali permanganates. A single phase was obtained. The transition metal **doping** enhanced the electrochem. behavior in lithium cells. The manganese phases formed during cycling appear to depend on the rate of reaction; a spinel-like phase was formed at 1 mA/cm2 whereas the layered phase is maintained at 0.1 mA/cm2 independent of whether potassium or lithium ions reside between the MnO2 layers of the structure. Polarization is significantly less in the spinel-like regime.
IT **160126-02-3**, Cobalt manganese potassium oxide (KxMn0.9Co0.1O2; electrochem. cycling in di-Me carbonate-ethylene carbonate containing LiPF6: electrochem. of layered manganese dioxides and rate effects)
RN 160126-02-3 HCAPLUS
CN Cobalt manganese potassium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Co	x	7440-48-4
K	x	7440-09-7
Mn	x	7439-96-5

IT **145055-00-1**, Iron manganese potassium oxide (KxMn0.9Fe0.1O2; electrochem. cycling in di-Me carbonate-ethylene carbonate containing LiPF6: electrochem. of layered manganese dioxides and rate effects)
RN 145055-00-1 HCAPLUS
CN Iron manganese potassium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
K	x	7440-09-7
Mn	x	7439-96-5
Fe	x	7439-89-6

IT **287097-27-2**, Manganese nickel potassium oxide (KxMn0.9Ni0.1O2; electrochem. cycling in di-Me carbonate-ethylene carbonate containing LiPF6: electrochem. of layered manganese dioxides

and rate effects)
RN 287097-27-2 HCAPLUS
CN Manganese nickel potassium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
K	x	7440-09-7
Ni	x	7440-02-0
Mn	x	7439-96-5

CC 72-2 (Electrochemistry)
Section cross-reference(s): 52, 67, 78
IT **Battery cathodes**
(alkali metal iron-group manganese oxides)
IT **160126-02-3**, Cobalt manganese potassium oxide
(KxMn0.9Co0.1O2; electrochem. cycling in di-Me carbonate-ethylene carbonate containing LiPF6: electrochem. of layered manganese dioxides and rate effects)
IT **145055-00-1**, Iron manganese potassium oxide
(KxMn0.9Fe0.1O2; electrochem. cycling in di-Me carbonate-ethylene carbonate containing LiPF6: electrochem. of layered manganese dioxides and rate effects)
IT **287097-27-2**, Manganese nickel potassium oxide
(KxMn0.9Ni0.1O2; electrochem. cycling in di-Me carbonate-ethylene carbonate containing LiPF6: electrochem. of layered manganese dioxides and rate effects)
REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 17 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:287732 HCAPLUS Full-text
Correction of: 1997:215197
DOCUMENT NUMBER: 132:281597
Correction of: 127:20806
TITLE: Electrical and microstructural characterization of (La0.8Sr0.2)(Fe1-xAlx)O3 and (La0.8Sr0.2)(Mn1-xAlx)O3 as possible SOFC **cathode** materials
AUTHOR(S): Holc, Janez; Kuscer, Danjela; Hrovat, Marko; Bernik, Slavko; Kolar, Drago
CORPORATE SOURCE: University of Ljubljana, Ljubljana, Slovenia
SOURCE: Solid State Ionics (**1997**), 95(3,4), 259-268
CODEN: SSIOD3; ISSN: 0167-2738
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 04 May 2000
AB The perovskites with nominal compns. (La0.8Sr0.2)(Fe1-xAlx)O3 and (La0.8Sr0.2)(Mn1-xAlx)O3 (x from 0 to 0.94) were evaluated as possible solid oxide fuel cell (SOFC) **cathodes**. Cell parameters of solid solns. were calculated The elec. and microstructural characteristics and high temperature interactions with YSZ were studied. As compared with 'pure' perovskites, **doping** with strontium and aluminum decreases and increases their specific resistivity, resp. The incorporation of alumina and strontium oxide substantially reduces the sinterability resulting in a rather porous, fine grained microstructure. The reaction rate between perovskite materials and

YSZ at high temps. is higher for lanthanum manganites than for lanthanum ferrites, and the partial exchange of cations on 'B' sites with aluminum decreases the reaction rate.

IT **84615-81-6**, Aluminum lanthanum manganese oxide (AlLa2MnO6) **108916-22-9**, Lanthanum manganese strontium oxide La0.8MnSr0.2O3 **190664-72-3**, Aluminum lanthanum manganese oxide (Al0.94La2Mn0.06O3)
(elec. and microstructural characterization of (La0.8Sr0.2)(Fe1-xAlx)O3 and (La0.8Sr0.2)(Mn1-xAlx)O3 as possible SOFC **cathode** materials)

RN 84615-81-6 HCAPLUS

CN Aluminum lanthanum manganese oxide (AlLa2MnO6) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Mn	1	7439-96-5
La	2	7439-91-0
Al	1	7429-90-5

RN 108916-22-9 HCAPLUS

CN Lanthanum manganese strontium oxide (La0.8MnSr0.2O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.2	7440-24-6
Mn	1	7439-96-5
La	0.8	7439-91-0

RN 190664-72-3 HCAPLUS

CN Aluminum lanthanum manganese oxide (Al0.94La2Mn0.06O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Mn	0.06	7439-96-5
La	2	7439-91-0
Al	0.94	7429-90-5

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST fuel cell **cathode** elec microstructural characterization; lanthanum strontium iron aluminum oxide **cathode**; manganese lanthanum strontium aluminum oxide **cathode**

IT Electric resistance
Fuel cell **cathodes**
Microstructure
X-ray spectra
(elec. and microstructural characterization of (La0.8Sr0.2)(Fe1-xAlx)O3 and (La0.8Sr0.2)(Mn1-xAlx)O3 as possible SOFC **cathode** materials)

IT 12022-43-4, Iron lanthanum oxide FeLaO3 12031-12-8, Lanthanum manganese oxide LaMnO3 **84615-81-6**, Aluminum lanthanum manganese oxide (AlLa2MnO6) **108916-22-9**, Lanthanum manganese strontium oxide La0.8MnSr0.2O3 109546-91-0, Iron lanthanum strontium

oxide FeLa0.8Sr0.2O3 178493-65-7, Aluminum iron lanthanum oxide Al0.5Fe0.5LaO3 190664-64-3, Aluminum iron lanthanum strontium oxide (Al0.3Fe0.7La0.8Sr0.2O3) 190664-65-4, Aluminum iron lanthanum strontium oxide (Al0.5Fe0.5La0.8Sr0.2O3) 190664-66-5, Aluminum iron lanthanum strontium oxide (Al0.94Fe0.06La0.8Sr0.2O3) 190664-67-6 190664-68-7 190664-69-8 190664-70-1, Aluminum iron lanthanum oxide (Al0.35Fe0.65LaO3) 190664-71-2, Aluminum iron lanthanum oxide (Al0.94Fe0.06LaO3) **190664-72-3**, Aluminum lanthanum manganese oxide (Al0.94La2Mn0.06O3)
(elec. and microstructural characterization of (La0.8Sr0.2)(Fe1-xAlx)O3 and (La0.8Sr0.2)(Mn1-xAlx)O3 as possible SOFC **cathode** materials)

IT 64417-98-7, Yttrium zirconium oxide
(**electrolyte**; elec. and microstructural characterization of (La0.8Sr0.2)(Fe1-xAlx)O3 and (La0.8Sr0.2)(Mn1-xAlx)O3 as possible SOFC **cathode** materials)

L31 ANSWER 18 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:240201 HCAPLUS Full-text
DOCUMENT NUMBER: 132:253506
TITLE: The stabilization of layered manganese oxides for use in rechargeable lithium batteries
AUTHOR(S): Whittingham, M. Stanley; Zavalij, Peter; Zhang, Fan; Sharma, Pramod; Moore, Gregory
CORPORATE SOURCE: Institute for Materials Research and Chemistry Department, State University of New York at Binghamton, Binghamton, NY, 13902-6016, USA
SOURCE: Materials Research Society Symposium Proceedings (**2000**), 575(New Materials for Batteries and Fuel Cells), 77-82
CODEN: MRSPDH; ISSN: 0272-9172
PUBLISHER: Materials Research Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 14 Apr 2000
AB The layered structure LixTiS2 and LixCoO2 are excellent reversible cathodes for lithium batteries. However, layered lithium manganese oxides are metastable relative to the spinel form on cycling in lithium batteries. They may be stabilized in the layer form by insertion of larger ions such as potassium in the interlayer region, which minimizes the diffusion of the manganese ions from the MnO2 blocks. Their low conductivity is an impediment to their use in high rate batteries. Cobalt can be doped into the layered alkali manganese dioxides, MxMn1-yCoyO2 for M = K or Na, during the hydrothermal synthesis from the alkali permanganates. A single phase is obtained up to about 5% mole cobalt. The cobalt **doping** is found to enhance the conductivity by two orders of magnitude relative to pure KxMnO2.
IT **160126-02-3P**, Cobalt Manganese potassium oxide
213533-03-0P, Cobalt Manganese sodium oxide
(stabilization of layered manganese oxides for use in rechargeable lithium batteries)
RN 160126-02-3 HCAPLUS
CN Cobalt manganese potassium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Co	x	7440-48-4
K	x	7440-09-7
Mn	x	7439-96-5

RN 213533-03-0 HCAPLUS
CN Cobalt manganese sodium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Co	x	7440-48-4
Na	x	7440-23-5
Mn	x	7439-96-5

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT **Battery cathodes**
Hydrothermal reactions
(stabilization of layered manganese oxides for use in rechargeable lithium batteries)
IT 51312-22-2P, Manganese potassium oxide hydrate **160126-02-3P**, Cobalt Manganese potassium oxide **213533-03-0P**, Cobalt Manganese sodium oxide 263011-69-4P, Cobalt manganese potassium sodium oxide
(stabilization of layered manganese oxides for use in rechargeable lithium batteries)
REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 19 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:813034 HCAPLUS Full-text
DOCUMENT NUMBER: 132:99524
TITLE: Electrochemical transient investigations on the diffusion of minority charge carriers in YSZ doped by transition metal oxides
AUTHOR(S): Huang, X. J.; Weppner, W.
CORPORATE SOURCE: Sensors and Solid State Ionics, Faculty of Engineering, Christian-Albrechts University, Kiel, 24143, Germany
SOURCE: Ionics (**1999**), 5(1 & 2), 91-99
CODEN: IONIFA; ISSN: 0947-7047
PUBLISHER: Institute for Ionics
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 26 Dec 1999
AB The voltage relaxation of galvanic cells with zirconia based **electrolytes** polarized between an inert Pt **electrode** and a Pt/air **electrode** is analyzed to obtain the diffusion coeffs. of holes and electrons. The hole diffusion coefficient can be reduced by replacing zirconium with guest ions of different size, e.g. Nb5+ and Ti4+. The TZP phase with 3 mol% Y2O3 of **dopant** has a higher hole diffusion coefficient than the CYZ phase doped with 8 mol% Y2O3. 1 And 3 mol% p-type MnO1.5 **doping** increases the conductivity of holes in CYZ to a large extend, but does not influence the diffusivity. The **doping** increases the hole conductivity through an increased concentration of holes. In the case of 10 and 15 mol% MnO1.5 doped Z3Y, the electronic conductivity is dominant. The chemical diffusion coeffs. which are related to the oxygen vacancies were determined by GITT. The chemical diffusion coefficient of oxygen vacancies is much larger than that for holes in zirconia.
IT **180776-05-0**, Manganese yttrium zirconium oxide (Mn0.02Y0.16Zr0.91O2.09) **180776-06-1**, Manganese yttrium zirconium oxide (Mn0.2Y0.06Zr0.87O2.13) **180776-07-2**, Manganese yttrium zirconium oxide (Mn0.3Y0.06Zr0.82O2.18)

254972-14-0, Manganese yttrium zirconium oxide (Mn0.06Y0.16Zr0.89O2.11)
(electrochem. transient investigations on diffusion of minority charge carriers in YSZ doped by transition metal oxides)

RN 180776-05-0 HCAPLUS
CN Manganese yttrium zirconium oxide (Mn0.02Y0.16Zr0.91O2.09) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2.09	17778-80-2
Zr	0.91	7440-67-7
Y	0.16	7440-65-5
Mn	0.02	7439-96-5

RN 180776-06-1 HCAPLUS
CN Manganese yttrium zirconium oxide (Mn0.2Y0.06Zr0.87O2.13) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2.13	17778-80-2
Zr	0.87	7440-67-7
Y	0.06	7440-65-5
Mn	0.2	7439-96-5

RN 180776-07-2 HCAPLUS
CN Manganese yttrium zirconium oxide (Mn0.3Y0.06Zr0.82O2.18) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2.18	17778-80-2
Zr	0.82	7440-67-7
Y	0.06	7440-65-5
Mn	0.3	7439-96-5

RN 254972-14-0 HCAPLUS
CN Manganese yttrium zirconium oxide (Mn0.06Y0.16Zr0.89O2.11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2.11	17778-80-2
Zr	0.89	7440-67-7
Y	0.16	7440-65-5
Mn	0.06	7439-96-5

CC 72-11 (**Electrochemistry**)
Section cross-reference(s): 65, 76

IT Air
(**electrode** in galvanic cell with Pt/air **electrode** with zirconia based **electrolytes** for determining diffusion coefficient of holes and electrons)

IT 113482-02-3, Yttrium zirconium oxide (Y0.06Zr0.97O2.03) 114168-16-0, Yttrium zirconium oxide (Y0.16Zr0.92O2.08) **180776-05-0**,

Manganese yttrium zirconium oxide (Mn0.02Y0.16Zr0.91O2.09) **180776-06-1**, Manganese yttrium zirconium oxide (Mn0.2Y0.06Zr0.87O2.13) **180776-07-2**, Manganese yttrium zirconium oxide (Mn0.3Y0.06Zr0.82O2.18) 180776-11-8, Niobium yttrium zirconium oxide (Nb0.2Y0.16Zr0.82O2.38) 254972-13-9, Titanium yttrium zirconium oxide (Ti0.24Y0.06-0.07Zr0.73O2.03) **254972-14-0**, Manganese yttrium zirconium oxide (Mn0.06Y0.16Zr0.89O2.11)
(electrochem. transient investigations on diffusion of minority charge carriers in YSZ doped by transition metal oxides)

IT 7440-06-4, Platinum, uses
(**electrode** in galvanic cell with Pt/air **electrode** with zirconia based **electrolytes** for determining diffusion coefficient of holes and electrons)

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 20 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:736635 HCAPLUS Full-text
DOCUMENT NUMBER: 132:24803
TITLE: Lanthanum alkaline-earth manganites as a **cathode** material in high-temperature solid oxide fuel cells
AUTHOR(S): Mori, Masashi; Hiei, Yoshiko; Yamamoto, Tohru; Itoh, Hibiki
CORPORATE SOURCE: Central Research Institute of Electric Power Industry, Kanagawa, 240-0196, Japan
SOURCE: Journal of the Electrochemical Society (**1999**), 146(11), 4041-4047
CODEN: JESOAN; ISSN: 0013-4651
PUBLISHER: Electrochemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 19 Nov 1999

AB The effect of RE (RE = Ce and Pr) **doping** LaMnO3 perovskite on crystallog. properties, phase relationships, conductivity, thermal expansion, sintering, and reaction with Y2O3-stabilized ZrO2 **electrolyte** is presented. La1-xRExMnO3 showed a single perovskite phase in the region $0 \leq x \leq 0.05$ for Ce substitution and over the entire composition range of Pr content. No effect of RE **doping** of LaMnO3 on conductivity was observed A decrease in thermal expansion coeffs. of LaMnO3 accompanied RE **doping** . Ce **doping** of LaMnO3 increased its morphol. stability and suppressed its reaction with the **electrolyte**. Ln1-xAExMnO3 (Ln: lanthanum concentration with La, Ce, and Pr, AE = Sr, Ca) materials were examined as **cathodes** in solid oxide fuel cells. X-ray diffraction anal. indicated that Ln1-xAExMnO3 ($0 \leq x \leq 0.3$) showed a single perovskite phase. Conductivities of these oxides increased with AE content and ranged from 80 to 200 S/cm at 1000°C in air, and thermal expansion coeffs. ranged from 9.5 to 11.6 + 10-6/°C. Ln1-xAExMnO3 showed less reactivity with the **electrolyte** compared with La1-xAExMnO3. The **cathodic** polarization of the (Ln0.8Sr0.2)0.95MnO3 at 1000°C was 60 mV at 500 mA/cm2 in air.

IT **252212-02-5**, Cerium lanthanum manganese oxide (Ce0.1-0.3La0.7-0.9MnO3) **252212-04-7**, Cerium lanthanum manganese oxide (Ce0.02La0.98MnO3) **252212-05-8**, Cerium lanthanum manganese oxide (Ce0.04La0.96MnO3)
(lanthanum alkaline-earth manganites as a **cathode** material in high-temperature solid oxide fuel cells)

RN 252212-02-5 HCAPLUS
CN Cerium lanthanum manganese oxide (Ce0.1-0.3La0.7-0.9MnO3) (9CI) (CA

INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ce	0.1 - 0.3	7440-45-1
Mn	1	7439-96-5
La	0.7 - 0.9	7439-91-0

RN 252212-04-7 HCAPLUS
CN Cerium lanthanum manganese oxide (Ce0.02La0.98MnO3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ce	0.02	7440-45-1
Mn	1	7439-96-5
La	0.98	7439-91-0

RN 252212-05-8 HCAPLUS
CN Cerium lanthanum manganese oxide (Ce0.04La0.96MnO3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ce	0.04	7440-45-1
Mn	1	7439-96-5
La	0.96	7439-91-0

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57, **72**
ST lanthanum alk earth manganite **cathode**; solid oxide fuel cell **cathode**
IT Crystal structure
Electric conductivity
Fuel cell **cathodes**
Solid state fuel cells
(lanthanum alkaline-earth manganites as a **cathode** material in high-temperature solid oxide fuel cells)
IT 12031-12-8, Lanthanum manganese oxide lamno3 12031-48-0, Lanthanum zirconium oxide la2zr2o7 **252212-02-5**, Cerium lanthanum manganese oxide (Ce0.1-0.3La0.7-0.9MnO3) 252212-03-6, Lanthanum manganese praseodymium oxide (La0.7-0.9MnPr0.1-0.3O3) **252212-04-7**, Cerium lanthanum manganese oxide (Ce0.02La0.98MnO3) **252212-05-8**, Cerium lanthanum manganese oxide (Ce0.04La0.96MnO3)
(lanthanum alkaline-earth manganites as a **cathode** material in high-temperature solid oxide fuel cells)
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 21 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:666657 HCAPLUS Full-text

DOCUMENT NUMBER: 132:66562
TITLE: Thermal expansion studies of B-site doped LaCrO3-perovskites under oxidizing or reducing atmosphere
AUTHOR(S): Hiei, Yoshiko; Yamamoto, Tohru; Itoh, Hibiki; Mori, Masashi; Inaba, Hideaki; Tagawa, Hiroaki
CORPORATE SOURCE: Chemical Energy Engineering department, Central research Institute of Electric Power Industry, Kanagawa, 240-0196, Japan
SOURCE: Advances in Science and Technology (Faenza, Italy) (**1999**), 24(Innovative Materials in Advanced Energy Technologies), 97-104
CODEN: ASETE5
PUBLISHER: Techna
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 20 Oct 1999
AB The thermal expansion mechanisms have been studied for LaMO3, LaCr1-xMxO3 and La0.9Sr0.1Cr1-xMxO3(M=Mg, Al, Ti, Mn, Fe, Co, Ni; 0≤x≤0.1) in air and the H2 atmosphere. The effects of Al, Mg, Mn, Fe and Ni as a **dopant** on the average linear thermal expansion coefficient(TEC) were not observed Co-, and **Mn-doping** to La0.9Sr0.1Cr1-xMxO3 were effective to increase their TECs, whereas Ti **doping** to La0.9Sr0.1Cr1-xMxO3 was effective to decrease its TEC. These results would be related with the outer-electron configuration in d-orbital of B-site **dopant**.
IT **130591-57-0**, Chromium lanthanum manganese oxide Cr0.9LaMn0.1O3
253280-28-3, Chromium lanthanum manganese oxide (CrLa0.9Mn0.1O3)
(thermal expansion studies of B-site doped LaCrO3-perovskites under oxidizing or reducing atmospheric)
RN 130591-57-0 HCAPLUS
CN Chromium lanthanum manganese oxide (Cr0.9LaMn0.1O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Cr	0.9	7440-47-3
Mn	0.1	7439-96-5
La	1	7439-91-0

RN 253280-28-3 HCAPLUS
CN Chromium lanthanum manganese oxide (CrLa0.9Mn0.1O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Cr	1	7440-47-3
Mn	0.1	7439-96-5
La	0.9	7439-91-0

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
IT 12003-65-5, Aluminum lanthanum oxide allao3 12016-86-3, Cobalt lanthanum oxide colao3 12017-94-6, Chromium lanthanum oxide crlao3 12022-43-4, Iron lanthanum oxide felao3 12031-12-8, Lanthanum manganese oxide laMno3 12031-18-4, Lanthanum nickel oxide lanio3

12201-04-6, Lanthanum titanium oxide latio3 106828-51-7, Lanthanum magnesium oxide lamgo3 109457-70-7, Chromium lanthanum titanium oxide Cr0.9LaTi0.1O3 110584-62-8, Chromium lanthanum magnesium oxide crla0.9mg0.1o3 110584-69-5, Chromium lanthanum strontium oxide crla0.9sr0.1o3 110709-66-5, Chromium cobalt lanthanum oxide Cr0.9co0.1LaO3 111592-61-1, Chromium lanthanum nickel oxide Cr0.9LaNi0.1O3 115927-76-9, Chromium lanthanum magnesium oxide Cr0.9LaMg0.1O3 **130591-57-0**, Chromium lanthanum manganese oxide Cr0.9LaMn0.1O3 134325-00-1, Chromium iron lanthanum oxide Cr0.9Fe0.1LaO3 134383-16-7, Chromium lanthanum manganese strontium oxide Cr0.9La0.9mn0.1Sr0.1O3 164792-05-6, Chromium lanthanum magnesium strontium oxide Cr0.9La0.9Mg0.1Sr0.1O3 166406-51-5, Chromium cobalt lanthanum strontium oxide Cr0.9co0.1La0.9Sr0.1O3 167996-31-8, Aluminum Chromium lanthanum oxide Al0.1Cr0.9LaO3 174779-24-9, Chromium lanthanum strontium titanium oxide Cr0.9La0.9Sr0.1Ti0.1O3 221323-77-9, Chromium lanthanum nickel strontium oxide Cr0.9La0.9ni0.1Sr0.1O3 253280-26-1, Aluminum chromium lanthanum oxide (Al0.1CrLa0.9O3) 253280-27-2, Chromium lanthanum titanium oxide (CrLa0.9Ti0.1O3) **253280-28-3**, Chromium lanthanum manganese oxide (CrLa0.9Mn0.1O3) 253280-29-4, Chromium iron lanthanum oxide (CrFe0.1La0.9O3) 253280-30-7, Chromium cobalt lanthanum oxide (CrCo0.1La0.9O3) 253280-31-8, Chromium lanthanum nickel oxide (CrLa0.9Ni0.1O3) 253280-32-9 253280-33-0, Chromium iron lanthanum strontium oxide (Cr0.9Fe0.1La0.9Sr0.1O3)
(thermal expansion studies of B-site doped LaCrO3-perovskites under oxidizing or reducing atmospheric)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 22 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:593901 HCAPLUS Full-text
DOCUMENT NUMBER: 131:301402
TITLE: Electrical properties of the layered manganese dioxides MxMn1-yCoyO2, M = Na, K
AUTHOR(S): Sharma, Pramod K.; Moore, Gregory J.; Zhang, Fan; Zavalij, Peter; Whittingham, M. Stanley
CORPORATE SOURCE: Department of Chemistry and Materials Research Center, State University of New York at Binghamton, Binghamton, NY, 13902-6016, USA
SOURCE: Electrochemical and Solid-State Letters (**1999**), 2(10), 494-496
CODEN: ESLEF6; ISSN: 1099-0062
PUBLISHER: Electrochemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 21 Sep 1999
AB Cobalt can be doped into the layered alkali manganese dioxides, MxMn1-yCoyO2 for M = K or Na, during the hydrothermal synthesis from the alkali permanganates. A single phase is obtained up to about 5% mol cobalt. The cobalt **doping** is found to enhance the conductivity by two orders of magnitude relative to pure KxMnO2.
IT **160126-02-3**, Cobalt Manganese potassium oxide
213533-03-0, Cobalt Manganese sodium oxide
(elec. properties of layered alkali manganese dioxides)
RN 160126-02-3 HCAPLUS
CN Cobalt manganese potassium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	x	17778-80-2
Co	x	7440-48-4
K	x	7440-09-7
Mn	x	7439-96-5

RN 213533-03-0 HCAPLUS
CN Cobalt manganese sodium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Co	x	7440-48-4
Na	x	7440-23-5
Mn	x	7439-96-5

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT **Battery cathodes**
Electric conductivity
Hydrothermal reactions
(elec. properties of layered alkali manganese dioxides)
IT 56127-35-6, Manganese potassium oxide 56127-36-7, Manganese sodium oxide **160126-02-3**, Cobalt Manganese potassium oxide **213533-03-0**, Cobalt Manganese sodium oxide 247058-02-2
(elec. properties of layered alkali manganese dioxides)
REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 23 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:566297 HCAPLUS Full-text
DOCUMENT NUMBER: 131:172710
TITLE: Flexible inorganic electrolyte fuel cell design
INVENTOR(S): Ketcham, Thomas D.; Powell, William R.; Stewart, Ronald L.; St. Julien, Dell J.
PATENT ASSIGNEE(S): Corning Incorporated, USA
SOURCE: PCT Int. Appl., 28 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9944254	A1	19990902	WO 1999-US2749 <--	19990209
W: JP				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 1060534	A1	20001220	EP 1999-905892 <--	19990209
EP 1060534	B1	20030122		
R: DE, FR, GB, IT				
JP 2002505512	T	20020219	JP 2000-533919 <--	19990209
US 6045935	A	20000404	US 1999-251036 <--	19990218
PRIORITY APPLN. INFO.:			US 1998-76333P P	19980227

<--
WO 1999-US2749 W 19990209
<--

ED Entered STN: 08 Sep 1999
AB Fuel cell designs incorporate non-planar inorg. electrolyte membranes offering improved mech. and thermal shock resistance for mobile power generation systems, e.g., for high temperature fuel cell applications using liquid fuel (diesel and gasoline) and air for automobile power plants and other power systems requiring only intermittent high-temperature fuel cell operation. The electrolyte sheet includes ≥1 elevated stress relief section having a sheet elevation above the sheet base plane such that the ratio of the sheet elevation to the largest sheet dimension is in the range of 1:600 to 1:3.
IT **59707-46-9**, Lanthanum manganese strontium oxide
(flexible inorg. electrolyte fuel cell design)
RN 59707-46-9 HCAPLUS
CN Lanthanum manganese strontium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Sr	x	7440-24-6
Mn	x	7439-96-5
La	x	7439-91-0

IC ICM H01M008-10
ICS H01M008-12; H01M008-00
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 51
IT 7439-96-5, **Manganese**, uses 7440-02-0, Nickel, uses 7440-32-6, Titanium, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses
(**dopant**; flexible inorg. electrolyte fuel cell design)
IT 7429-90-5, Aluminum, uses 12671-91-9, Kanthal A-1 **59707-46-9**, Lanthanum manganese strontium oxide 113482-02-3, Yttrium zirconium oxide Y0.06Zr0.9702.03 114168-17-1, Yttrium zirconium oxide Y0.08Zr0.9602.04
(flexible inorg. electrolyte fuel cell design)
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 24 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:468676 HCAPLUS Full-text
DOCUMENT NUMBER: 131:93927
TITLE: Surface coated non-carbon metal-based **anodes** for aluminum production cells
INVENTOR(S): De Nora, Vittorio
PATENT ASSIGNEE(S): Moltech Invent S.A., Luxembourg
SOURCE: PCT Int. Appl., 27 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 10
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9936591	A1	19990722	WO 1999-IB79	19990119

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W: AT, AU, BR, CA, CH, CN, CZ, DE, DK, ES, GB, GH, HU, ID, IN, IS, JP, KP, KR, MX, NO, NZ, PL, RO, RU, SE, SI, SK, TJ, TR, UA, US, YU, AM, AZ, BY, KG, KZ, MD, TM
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

US 6077415	A	20000620	US 1998-126206	19980730
			<--	
US 6365018	B1	20020402	US 1998-126359	19980730
			<--	
CA 2317595	A1	19990722	CA 1999-2317595	19990119
			<--	
AU 9917795	A	19990802	AU 1999-17795	19990119
			<--	
AU 747906	B2	20020530		
EP 1049815	A1	20001108	EP 1999-900107	19990119
			<--	
EP 1049815	B1	20030409		
R: DE, ES, FR, GB, IT, NL				
US 6425992	B1	20020730	US 2000-616333	20000715
			<--	
NO 2000003704	A	20000719	NO 2000-3704	20000719
			<--	
US 2002092765	A1	20020718	US 2002-992805	20020314
			<--	
US 6656520	B2	20031202		
US 2003070937	A1	20030417	US 2002-303285	20021125
			<--	
US 6913682	B2	20050705		

PRIORITY APPLN. INFO.:	WO 1998-IB81	A	19980120
	<--		
	US 1998-126206	A	19980730
	<--		
	US 1998-126359	A	19980730
	<--		
	WO 1999-IB79	W	19990119
	<--		
	US 2001-772286	A1	20010129
	<--		

ED Entered STN: 30 Jul 1999

AB A non-carbon, metal-based, high temperature resistant, elec. conductive and electrochem. active **anode** of a cell for the production of aluminum has a metal-based oxidation-resistant substrate to which an adherent multi-layer coating is applied prior to its immersion into the **electrolyte** and start up of the electrolysis by connection to the pos. current supply. The multi-layer coating is obtainable from one or more applied layers selected from: a liquid solution, a dispersion in a liquid or a paste, a suspension in a liquid or a paste, and a pasty or non-pasty slurry, and combinations thereof, with or without heat treatment between two consecutively applied layers. At least one layer of the multi-layer coating contains a polymeric and/or a colloidal carrier. The coating is after final heat treatment elec. conductive and has during operation in the cell an electrochem. active surface for the oxidation of oxygen ions present at the surface of the **anode**.

IT **12063-10-4**, Manganese ferrite
(use for formation in outer layer on electrocatalytically active non-carbon metal-based **anodes** for aluminum production cells)

RN 12063-10-4 HCAPLUS

CN Iron manganese oxide (Fe2MnO4) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **12018-15-4**, Chromium manganese oxide (Cr2MnO4)
(use in intermediate layer on electrocatalytically active non-carbon metal-based **anodes** for aluminum production cells)
RN 12018-15-4 HCAPLUS
CN Chromium manganese oxide (Cr2MnO4) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	4	17778-80-2
Cr	2	7440-47-3
Mn	1	7439-96-5

IC ICM C25C003-12
ICS C25C007-02
CC 72-2 (**Electrochemistry**)
Section cross-reference(s): 56
ST surface coated noncarbon metal based **anodes** aluminum prodn cell
IT **Cathodes**
(aluminum-wettable, use in **electrolytic** cell for aluminum production)
IT **Electrodes**
(bipolar; use in **electrolytic** cell for aluminum production)
IT Catalysts
(electrocatalysts; use in outer layer on electrocatalytically active non-carbon metal-based **anodes** for aluminum production cells)
IT Paints
(in formation of active oxide layer of surface coated non-carbon metal-based **anodes** for aluminum production cells using slurry containing)
IT Electrowinning
(of aluminum in **electrolytic** cell with surface coated non-carbon metal-based **anodes**)
IT **Electrodeposition**
(of copper and nickel on non-carbon metal-based **anodes** for aluminum production cells)
IT Corrosion
(of electrocatalytically active non-carbon metal-based **anodes** for aluminum production cells during electrolysis)
IT Electrolysis
(of molten cryolite with electrocatalytically active non-carbon metal-based **anodes**)
IT Oxidation, electrochemical
(of oxygen ion on surface coated non-carbon metal-based **anodes** for aluminum production cells)
IT Heat treatment
(of surface coated non-carbon metal-based **anodes** for aluminum production cells using slurry containing)
IT Fluorides, uses
(oxyfluorides; use multilayer coating of surface coated non-carbon metal-based **anodes** for aluminum production cells)
IT Group VA element compounds
(phosphides; use multilayer coating of surface coated non-carbon metal-based **anodes** for aluminum production cells)
IT Slurries
(polymeric slurry containing nickel ferrite powder and nickel aluminate for formation of surface coated non-carbon metal-based **anodes** for aluminum production cells)

IT Cermets
(substrate for surface coated non-carbon metal-based **anodes** for aluminum production cells)
IT Alloys, uses
Intermetallic compounds
Metals, uses
(substrate for surface coated non-carbon metal-based **anodes** for aluminum production cells)
IT **Anodes**
Coating materials
Multilayers
(surface coated non-carbon metal-based **anodes** for aluminum production cells)
IT Ferrites
(use for formation in outer layer on electrocatalytically active non-carbon metal-based **anodes** for aluminum production cells)
IT Dispersion (of materials)
Suspensions
(use for preparation of surface coated non-carbon metal-based **anodes** for aluminum production cells)
IT Chromates
(use in intermediate layer on electrocatalytically active non-carbon metal-based **anodes** for aluminum production cells)
IT Rare earth metals, uses
(use in outer layer on electrocatalytically active non-carbon metal-based **anodes** for aluminum production cells)
IT Oxides (inorganic), properties
(use multilayer coating of surface coated non-carbon metal-based **anodes** for aluminum production cells)
IT Carbides
(use multilayer coating of surface coated non-carbon metal-based **anodes** for aluminum production cells)
IT 7782-44-7, Oxygen, properties
(electrooxidn. of oxygen ions on surface of coated non-carbon metal-based **anodes** for aluminum production cells)
IT 11105-45-6
(intermediate layer in surface coated non-carbon metal-based **anodes** for aluminum production cells)
IT 7440-50-8, Copper, uses
(nickel plated; substrate and **electrodeposit** for formation of surface coated non-carbon metal-based **anodes** for aluminum production cells)
IT 12168-54-6, Nickel ferrite
(polymeric slurry containing nickel ferrite powder and nickel aluminate for formation of surface coated non-carbon metal-based **anodes** for aluminum production cells)
IT 7440-02-0, Nickel, properties
(substrate and **electrodeposit** for formation of surface coated non-carbon metal-based **anodes** for aluminum production cells)
IT 7439-89-6, Iron, properties 7439-98-7, Molybdenum, properties
7440-25-7, Tantalum, properties 7440-47-3, Chromium, properties
7440-48-4, Cobalt, properties
(substrate for formation of surface coated non-carbon metal-based **anodes** for aluminum production cells)
IT 12606-02-9, Inconel 146729-81-9
(substrate for formation of surface coated non-carbon metal-based **anodes** for aluminum production cells)
IT 7429-90-5P, Aluminum, properties
(surface coated non-carbon metal-based **anodes** for

aluminum production cells)
IT 12645-46-4, Iridium oxide
(surface coated non-carbon metal-based **anodes** for aluminum production cells containing electrocatalyst for rapid conversion of oxygen ions into mol. oxygen)
IT 15096-52-3, Cryolite
(testing of surface coated non-carbon metal-based **anodes** for aluminum production cells in molten cryolite)
IT 1308-38-9, Chromium oxide Cr2O3, properties
(use as barrier layer in multilayer coating of surface coated non-carbon metal-based **anodes** for aluminum production cells)
IT 1314-23-4, Zirconium oxide, uses 1332-29-2, Tin oxide 11118-57-3, Chromium oxide 13463-67-7, Titanium oxide, uses
(use as **dopant** for ferrites in outer layer on electrocatalytically active non-carbon metal-based **anodes** for aluminum production cells)
IT 537-00-8, Cerium acetate 1309-48-4, Magnesia, uses 1314-13-2, Zinc oxide, uses 1314-20-1, Thoria, uses 1314-36-9, Yttria, uses 1344-28-1, Aluminum oxide (Al2O3), uses 7631-86-9, Silica, uses 12057-24-8, Lithia, uses
(use as dried colloids or polymer in multilayer coating on electrocatalytically active non-carbon metal-based **anodes** for aluminum production cells)
IT 12052-28-7, Cobalt ferrite **12063-10-4**, Manganese ferrite 12063-19-3, Zinc ferrite 12068-86-9, Magnesium ferrite
(use for formation in outer layer on electrocatalytically active non-carbon metal-based **anodes** for aluminum production cells)
IT 12009-92-6, Beryllium Chromium oxide (BeCr2O4) 12013-31-9, Calcium Chromium oxide (CaCr2O4) 12016-69-2, Chromium cobalt oxide (Cr2CoO4) 12018-10-9, Chromium copper oxide (Cr2CuO4) **12018-15-4**, Chromium manganese oxide (Cr2MnO4) 12018-18-7, Chromium nickel oxide (Cr2NiO4) 12018-19-8, Chromium zinc oxide (Cr2ZnO4) 12053-26-8, Chromium magnesium oxide (Cr2MgO4) 12068-77-8, Chromium iron oxide (Cr2FeO4) 12344-99-9, Barium Chromium oxide (BaCr2O4) 12381-54-3, Chromium strontium oxide (Cr2SrO4)
(use in intermediate layer on electrocatalytically active non-carbon metal-based **anodes** for aluminum production cells)
IT 7439-88-5, Iridium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-21-3, Silicon, uses 7440-31-5, Tin, uses 7440-66-6, Zinc, uses 8049-20-5, Mischmetal
(use in outer layer on electrocatalytically active non-carbon metal-based **anodes** for aluminum production cells)
IT 10025-97-5, Iridium tetrachloride
(use in polymeric slurry containing nickel ferrite powder and IrCl4 for formation of surface coated non-carbon metal-based **anodes** for aluminum production cells)
REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 25 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:418877 HCAPLUS Full-text
DOCUMENT NUMBER: 131:146822
TITLE: New **cathode** material for oxide ionic **electrolytes**
AUTHOR(S): Hashimoto, S.; Iwahara, H.
CORPORATE SOURCE: Center for Integrated Research in Science and Engineering, Nagoya University, Nagoya, 464-8603, Japan

SOURCE: Solid State Ionics: Science and Technology, [Proceedings of the Asian Conference], 6th, New Delhi, Nov. 29-Dec. 4, 1998 (**1998**), 411-415. Editor(s): Chowdari, B. V. R. World Scientific: Singapore, Singapore. CODEN: 67VKAM
DOCUMENT TYPE: Conference
LANGUAGE: English
ED Entered STN: 07 Jul 1999
AB We found that the partial substitution of Ce for Sr in SrMnO3 could stabilizes the perovskite-type structure down to room temperature The dependence of elec. conductivities on temperature was measured from 1000° to room temperature in air. By **doping** with Ce, the elec. conductivities of SrMnO3 have been enhanced drastically. Especially, Sr0.7Ce0.3MnO3-a showed higher conductivity (290 S•cm-1 at 1000°) than that of conventional La0.8Sr0.2MnO3-a (about 175 S•cm-1). Sr0.7Ce0.3MnO3-a was chemical compatible with (CeO2)0.8(YO1.5)0.2 at fabrication temperature In the electrochem. gas cell using Sr0.7Ce0.3MnO3-a as a **cathode** material and (CeO2)0.8(YO1.5)0.2 as an **electrolyte**, contact resistance between the **cathode** and the **electrolyte** was as low as the case of Pt **electrode** although the polarization should be minimized by controlling the microstructure and the processing of the **cathode**.
IT **235428-75-8D**, Cerium manganese strontium oxide (Ce0.3MnSr0.7O3), oxygen-deficient
(cerium-doped SrMnO3 **cathode** material for oxide ionic **electrolytes** for fuel cells)
RN 235428-75-8 HCAPLUS
CN Cerium manganese strontium oxide (Ce0.3MnSr0.7O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ce	0.3	7440-45-1
Sr	0.7	7440-24-6
Mn	1	7439-96-5

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST **cathode** material solid oxide fuel cell; cerium manganese strontium oxide fuel cell
IT Electric conductivity
Fuel cell **cathodes**
Solid state fuel cells
(cerium-doped SrMnO3 **cathode** material for oxide ionic **electrolytes** for fuel cells)
IT 116845-72-8, Cerium yttrium oxide Ce0.8Y0.2O1.9 **235428-75-8D**, Cerium manganese strontium oxide (Ce0.3MnSr0.7O3), oxygen-deficient
(cerium-doped SrMnO3 **cathode** material for oxide ionic **electrolytes** for fuel cells)
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 26 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:342876 HCAPLUS Full-text
DOCUMENT NUMBER: 131:61097
TITLE: **Cathodic** activity and interfacial stability of Y0.8Ca0.2Co1-xFexO3/YSZ **electrodes** for solid oxide fuel cells

AUTHOR(S): Lee, Hee Y.; Jang, Jong H.; Oh, Seung M.
CORPORATE SOURCE: Division of Chemical Engineering and Institute of Chemical Process, College of Engineering, Seoul National University, Seoul, 151-742, S. Korea
SOURCE: Journal of the Electrochemical Society (**1999**), 146(5), 1707-1711
CODEN: JESOAN; ISSN: 0013-4651
PUBLISHER: Electrochemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 07 Jun 1999

AB The Fe-doped cobaltates, Y0.8Ca0.2Co1-xFexO3-δ (x = 0.1-0.7), were prepared and their high-temperature phase stability and **cathodic** activity were investigated. The perovskite/yttria-stabilized zirconia (YSZ) **electrodes** were fabricated via a silk printing technique. It was found that the undoped cobaltate (x = 0) is so thermally unstable that the preparation of pure perovskite phase was unsuccessful. The partial Fe-**doping** to Co (x = 0.1-0.7), however, gave us highly crystalline perovskite powders of an orthorhombic lattice. Among those samples of x = 0.1-0.7, the Y0.8Ca0.2Co0.7Fe0.3O3-δ showed the best **cathodic** activity which is superior to La0.9Sr0.1MnO3. The thermal expansion coefficient of this material (10.5 + 10-6 cm/cm-K at 25-10000) was very close to that of 8 mol% YSZ (10.8 + 10-6 cm/cm-K). As a result of interfacial reaction between Y0.8Ca0.2Co0.7Fe0.3O3-δ and YSZ **electrolyte**, a spinel-type oxide was produced. But the interfacial product formation proceeded mainly during the **electrode** adhesion period (1200°) whereas its growth during the cell operation (900-1000°) was negligible.

IT **110781-51-6D**, Lanthanum manganese strontium oxide La0.9MnSr0.1O3, oxygen-deficient
(**cathodic** activity and interfacial stability of Y0.8Ca0.2Co1-xFexO3/yttria-stabilized ZrO2 **electrodes** for solid oxide fuel cells)
RN 110781-51-6 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.9MnSr0.1O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.1	7440-24-6
Mn	1	7439-96-5
La	0.9	7439-91-0

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST fuel cell interfacial stability **cathode electrolyte**
IT Fuel cell **cathodes**
Fuel cell **electrolytes**
Solid state fuel cells
Thermal expansion
(**cathodic** activity and interfacial stability of Y0.8Ca0.2Co1-xFexO3/yttria-stabilized ZrO2 **electrodes** for solid oxide fuel cells)
IT **110781-51-6D**, Lanthanum manganese strontium oxide La0.9MnSr0.1O3, oxygen-deficient 114168-16-0, Tz-8y 206440-94-0D, Calcium cobalt iron yttrium oxide Ca0.2Co0.9Fe0.1Y0.8O3, oxygen-deficient 206440-95-1D, Calcium cobalt iron yttrium oxide Ca0.2Co0.7Fe0.3Y0.8O3, oxygen-deficient 206440-96-2D, Calcium cobalt iron yttrium oxide Ca0.2Co0.5Fe0.5Y0.8O3, oxygen-deficient 206440-97-3D, Calcium cobalt iron yttrium oxide Ca0.2Co0.3Fe0.7Y0.8O3, oxygen-deficient

(**cathodic** activity and interfacial stability of Y0.8Ca0.2Co1-xFexO3/yttria-stabilized ZrO2 **electrodes** for solid oxide fuel cells)
REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 27 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:232477 HCAPLUS Full-text
DOCUMENT NUMBER: 130:355741
TITLE: Characterization of Nd1-xSrxMnO3±δ SOFC **cathode** materials
AUTHOR(S): Kostogloudis, G. Ch.; Ftikos, Ch.
CORPORATE SOURCE: Laboratory of Inorganic Materials Technology, Department of Chemical Engineering, National Technical University of Athens, Athens, GR-157 80, Greece
SOURCE: Journal of the European Ceramic Society (**1999**), 19(4), 497-505
CODEN: JECSER; ISSN: 0955-2219
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 15 Apr 1999
AB The crystal structure, thermal expansion behavior and elec. conductivity of Nd1-xSrxMnO3±δ (x = 0-0.5) perovskite oxides were investigated. The chemical compatibility of the compns. with 40 and 50 mol% Sr with Gd2O3-doped CeO2 (CGO) **electrolyte** was also studied. An orthorhombic GdFeO3-type symmetry (space group Pbnm, z = 4) was identified for all perovskite oxides, and the lattice parameters were determined As the level of Sr **doping** increases, the pseudo-cubic lattice constant decreases, and the thermal expansion coefficient increases. The elec. conductivity can be described by the small polaron hopping conductivity model. The conductivity increases on increasing Sr **doping**, while the activation energy decreases. The compns. with 40 and 50 mol% Sr show very good thermal expansion and chemical compatibility with CGO **electrolyte** and can be considered as candidate intermediate-temperature solid oxide fuel cell **cathode** materials.
IT **109546-98-7D**, Manganese neodymium strontium oxide MnNd0.7Sr0.3O3, oxygen nonstoichiometric **143079-90-7D**, Manganese neodymium strontium oxide MnNd0.5Sr0.5O3, oxygen nonstoichiometric **152825-24-6D**, Manganese neodymium strontium oxide MnNd0.6Sr0.4O3, oxygen nonstoichiometric **224618-18-2D**, Manganese neodymium strontium oxide (MnNd0.85Sr0.15O3), oxygen nonstoichiometric
(**cathode**; crystal structure, thermal expansion, and elec. conductivity of Nd1-xSrxMnO3±δ ceramics as candidate solid oxide fuel cell **cathode** materials)
RN 109546-98-7 HCAPLUS
CN Manganese neodymium strontium oxide (MnNd0.7Sr0.3O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.3	7440-24-6
Nd	0.7	7440-00-8
Mn	1	7439-96-5

RN 143079-90-7 HCAPLUS

CN Manganese neodymium strontium oxide (MnNd0.5Sr0.5O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.5	7440-24-6
Nd	0.5	7440-00-8
Mn	1	7439-96-5

RN 152825-24-6 HCAPLUS
CN Manganese neodymium strontium oxide (MnNd0.6Sr0.4O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.4	7440-24-6
Nd	0.6	7440-00-8
Mn	1	7439-96-5

RN 224618-18-2 HCAPLUS
CN Manganese neodymium strontium oxide (MnNd0.85Sr0.15O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.15	7440-24-6
Nd	0.85	7440-00-8
Mn	1	7439-96-5

CC 57-2 (Ceramics)
Section cross-reference(s): **52**
ST neodymium strontium manganate property fuel cell **cathode** candidate
IT Crystal structure
Electric conductivity
Thermal expansion
(crystal structure, thermal expansion, and elec. conductivity of Nd1-xSrxMnO3±δ ceramics as candidate solid oxide fuel cell **cathode** materials)
IT Electric conductors, ceramic
Fuel cell **cathodes**
(neodymium strontium manganate; crystal structure, thermal expansion, and elec. conductivity of Nd1-xSrxMnO3±δ ceramics as candidate solid oxide fuel cell **cathode** materials)
IT **109546-98-7D**, Manganese neodymium strontium oxide MnNd0.7Sr0.3O3, oxygen nonstoichiometric **143079-90-7D**, Manganese neodymium strontium oxide MnNd0.5Sr0.5O3, oxygen nonstoichiometric **152825-24-6D**, Manganese neodymium strontium oxide MnNd0.6Sr0.4O3, oxygen nonstoichiometric **224618-18-2D**, Manganese neodymium strontium oxide (MnNd0.85Sr0.15O3), oxygen nonstoichiometric
(**cathode**; crystal structure, thermal expansion, and elec. conductivity of Nd1-xSrxMnO3±δ ceramics as candidate solid oxide fuel cell **cathode** materials)
IT 12064-62-9, Gadolinium oxide (Gd2O3)

(**dopant**, ceria **electrolyte**; compatibility of Nd1-xSrxMnO3±δ candidate **cathode** material with Gd2O3-doped CeO2 **electrolyte**)

IT 1306-38-3, Cerium oxide (CeO2), processes
(**electrolyte**; compatibility of Nd1-xSrxMnO3±δ candidate **cathode** material with Gd2O3-doped CeO2 **electrolyte**)

REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 28 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:131207 HCAPLUS Full-text
DOCUMENT NUMBER: 130:211709
TITLE: Properties of (La0.7Sr0.3)0.9Mn1-yCryO3-δ **cathode** materials for solid oxide fuel cell (SOFC)
AUTHOR(S): Yang, Y. J.; Tu, H. Y.; Lu, Z. Y.; Yang, J. H.; Wen, T. L.
CORPORATE SOURCE: State Key Lab. High Performance Ceramics Superfine Structure, Shanghai Institute Ceramics, Chinese Academy Sciences, Shanghai, 200050, Peop. Rep. China
SOURCE: Journal of the Australasian Ceramic Society (**1998**), 34(1), 210-215
CODEN: JAUSEL; ISSN: 1018-6689
PUBLISHER: Australasian Ceramic Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 01 Mar 1999

AB The starting powders of (La0.7Sr0.3)0.9Mn1-yCryO3-δ (y = 0.apprx.0.15) were synthesized by glycine-nitrate-process (GNP). The powder features and sintering behaviors were characterized. The elec. conductivity of sintered samples has been measured. Using a screen printing technique, the **cathode** film was coated on YSZ pellets for the measurement of **cathodic** polarization by means of a current interruption technique. It was found that substituting Cr for Mn in A-site deficient La(Sr)MnO3-δ gave rise to increased sinterability, improved morphol. and thermal-chemical stability; moreover, **cathode** overpotential was reduced without a considerable loss of elec. conductivity

IT **106390-66-3D**, Lanthanum manganese strontium oxide (La0.7MnSr0.3O3), oxygen-deficient
(properties of chromium-**doped** lanthanum **manganese** strontium oxide **cathodes** for solid oxide fuel cell (SOFC))

RN 106390-66-3 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.7MnSr0.3O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.3	7440-24-6
Mn	1	7439-96-5
La	0.7	7439-91-0

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76

ST chromium **doped** lanthanum **manganese** strontium oxide

fuel cell **cathode**; elec property manganate **cathode** solid **electrolyte** fuel cell; microstructure manganate **cathode** solid **electrolyte** fuel cell

IT Overvoltage
(**cathode**; properties of chromium-**doped** lanthanum **manganese** strontium oxide **cathodes** for solid oxide fuel cell (SOFC))

IT **Cathodic** polarization
Contraction (mechanical)
Electric conductivity
Fuel cell **cathodes**
Microstructure
Particle size distribution
Porosity
Sintering
Solid state fuel cells
(properties of chromium-**doped** lanthanum **manganese** strontium oxide **cathodes** for solid oxide fuel cell (SOFC))

IT 7440-47-3, Chromium, uses
(**dopant**; properties of chromium-**doped** lanthanum **manganese** strontium oxide **cathodes** for solid oxide fuel cell (SOFC))

IT **106390-66-3D**, Lanthanum manganese strontium oxide (La0.7MnSr0.3O3), oxygen-deficient 143193-65-1D, Chromium lanthanum manganese strontium oxide (Cr0.1La0.7Mn0.9Sr0.3O3), oxygen-deficient 220978-09-6D, oxygen-deficient 220978-13-2D, oxygen-deficient
(properties of chromium-**doped** lanthanum **manganese** strontium oxide **cathodes** for solid oxide fuel cell (SOFC))

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 29 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1998:350638 HCAPLUS Full-text
DOCUMENT NUMBER: 129:87281
TITLE: Preparation of perovskite-type La1-xSrxMnO3 films by vapor-phase processes and their electrochemical properties. II. Effects of **doping** strontium to LaMnO3 on the **electrode** properties
AUTHOR(S): Ioroi, Tsulomu; Hara, Tatsunoir; Uchimoto, Yoshiharu; Ogumi, Zempachi; Takehara, Zen-Ichiro
CORPORATE SOURCE: Department of Energy and Hydrocarbon Chemistry, Graduate School of Engineering, Kyoto University, Kyoto, 606-8501, Japan
SOURCE: Journal of the Electrochemical Society (**1998**), 145(6), 1999-2004
CODEN: JESOAN; ISSN: 0013-4651
PUBLISHER: Electrochemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 10 Jun 1998
AB Complex a.c. impedance and steady-state polarization measurements were conducted on dense and thin LaMnO3 and La0.85Sr0.15MnO3 film **electrodes** and porous-sintered LaMnO3 and La0.85Sr0.15MnO3 **electrodes** in air at elevated temps. between 873 and 1273 K, to study the reaction mechanism of oxygen reduction at the La1-xSrxMnO3 **electrode** of a solid oxide fuel. cell. By fitting impedance spectra to an appropriate equivalent circuit, the chemical

diffusion coefficient of oxygen and interfacial reaction resistance of the LaMnO3 and La0.85Sr0.15MnO3 film **electrodes** were determined The chemical diffusion coefficient was scarcely affected by Sr **doping**, while the interfacial reaction resistance considerably decreased by Sr **doping**. Steady-state polarization behavior of the porous-sintered La1-xSrxMnO3 was dramatically improved by **doping** Sr, while those of the dense La1-xSrxMnO3 film were almost unchanged by Sr **doping**. Probably the electrochem. reduction of oxygen at the porous La1-xSrxMnO3 **electrode** takes place around the triple phase boundary (TPB), and the reaction rate is controlled by the surface reactions close to the triple phase boundary region.

IT **120605-82-5**, Lanthanum manganese strontium oxide (La0.85MnSr0.15O3)
(preparation of perovskite-type La1-xSrxMnO3 films by vapor-phase processes and electrochem. properties: effects of **doping** strontium to LaMnO3 on **electrode** properties)

RN 120605-82-5 HCAPLUS

CN Lanthanum manganese strontium oxide (La0.85MnSr0.15O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.15	7440-24-6
Mn	1	7439-96-5
La	0.85	7439-91-0

CC 72-2 (**Electrochemistry**)
Section cross-reference(s): **52**, 65, 67, 75, 76

ST lanthanum strontium manganate prepn electrochem property; **doping** strontium lanthanum manganate **electrode** property; **electrode** lanthanum strontium manganate; oxygen electroredn lanthanum strontium manganate; diffusion oxygen lanthanum strontium manganate; fuel cell **cathode** lanthanum strontium manganate; kinetics oxygen electroredn lanthanum strontium manganate

IT Film **electrodes**
(lanthanum strontium manganate)

IT Fuel cell **cathodes**
(of lanthanum strontium manganate)

IT **Electrolytic** polarization
(of lanthanum strontium manganate and LaMnO3)

IT Vapor deposition process
(of lanthanum strontium manganate on YSZ for **electrodes**)

IT Equivalent electric circuits
(of lanthanum strontium manganate/YSZ **electrode**)

IT **Doping**
(of strontium by LaMnO3 and effect on **electrode** properties)

IT **Electrodes**
(strontium **doping** of LaMnO3 effect on properties of)

IT 12031-12-8, Lanthanum **manganese** oxide (LaMnO3)
(**doping** of strontium by LaMnO3 and effect on **electrode** properties)

IT 64417-98-7, Yttrium zirconium oxide
(equivalent circuit of lanthanum strontium manganate/YSZ **electrode**)

IT **120605-82-5**, Lanthanum manganese strontium oxide (La0.85MnSr0.15O3)
(preparation of perovskite-type La1-xSrxMnO3 films by vapor-phase processes and electrochem. properties: effects of **doping**

strontium to LaMnO3 on **electrode** properties)
IT 1314-23-4, Zirconia, uses
(yttria-stabilized; equivalent circuit of lanthanum strontium manganate/YSZ **electrode**)
IT 1314-36-9, Yttria, uses
(zirconia stabilized by; equivalent circuit of lanthanum strontium manganate/YSZ **electrode**)
REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 30 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1998:299305 HCAPLUS Full-text
DOCUMENT NUMBER: 129:59840
TITLE: Potentiometry of the interface between a solid sodium-conducting **electrolyte** and SmCo1-xMxO3 (M = Ti, Mn) in the presence of oxygen
AUTHOR(S): Tkacheva, N. S.; Korosteleva, A. I.; Bukun, N. G.
CORPORATE SOURCE: Inst. New Chemical Problems, Russian Acad. Scis., Moscow, 142432, Russia
SOURCE: Russian Journal of Electrochemistry (Translation of Elektrokhimiya) (**1998**), 34(4), 387-392
CODEN: RJELE3; ISSN: 1023-1935
PUBLISHER: MAIK Nauka/Interperiodica Publishing
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 22 May 1998
AB The potentiometry method is employed to study the behavior of the electrochem. cell SmCo1-xMxO3|Na+-SE|Na0.65CoO2 in mixts. of mol. oxygen and argon. The cell contains a sodium-conducting solid **electrolyte** (Na+-SE) and an oxygen **electrode** based on a binary Sm-Co oxide doped by oxides of Ti and Mn. The β-phase of a Na-Co bronze, Na0.65CoO2, is selected as the reference **electrode**. With compds. prone to hydration, such as β-Al2O3, β"-Al2O3 and Na5GdSi4O12, used as Na+-SE, the solid-phase system is reversible towards oxygen at temps. exceeding 150°. The oxygen reduction is shown to proceed at these temps. as a single-electron process, probably, with the formation of the superperoxide ion O2-. The reversibility by oxygen can be ensured even at room temperature, provided finely divided platinum (.apprx.5 wt%) is deposited on the oxide **electrode** surface. In the low-temperature region, the oxygen reduction mechanism is determined by the **dopant** M in the oxygen **electrode** composition With M = Ti, the process involves two electrons and leads to the O22- ion formation, whereas with M = Mn, the process is a four-electron one and yields the OH- ion. The concentration dependence of the cell's emf is described by the Nernst equation up to 80 vol% of oxygen.
IT **125649-10-7**, Cobalt manganese samarium oxide (Co0.8Mn0.2SmO3)
163263-28-3, Cobalt manganese samarium oxide (CoMnSm2O6)
208525-72-8, Cobalt manganese samarium oxide (Co0.9Mn0.1SmO3)
(conductivity of complex oxide with perovskite structure)
RN 125649-10-7 HCAPLUS
CN Cobalt manganese samarium oxide (Co0.8Mn0.2SmO3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Co	0.8	7440-48-4
Sm	1	7440-19-9
Mn	0.2	7439-96-5

RN 163263-28-3 HCAPLUS
CN Cobalt manganese samarium oxide (CoMnSm2O6) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Co	1	7440-48-4
Sm	2	7440-19-9
Mn	1	7439-96-5

RN 208525-72-8 HCAPLUS
CN Cobalt manganese samarium oxide (Co0.9Mn0.1SmO3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Co	0.9	7440-48-4
Sm	1	7440-19-9
Mn	0.1	7439-96-5

CC 72-2 (**Electrochemistry**)
Section cross-reference(s): 66
ST potentiometry interface solid sodium conducting **electrolyte**; samarium cobalt titanium manganese oxide
IT Interface
(potentiometry of the interface between a solid sodium-conducting **electrolyte** and SmCo1-xMxO3 (M = Ti, Mn) in the presence of oxygen)
IT 208525-66-0, Cobalt sodium oxide (CoNa0.65O2)
(as reference **electrode**)
IT 58572-20-6, Sodium zirconium phosphate silicate (Na3Zr2(PO4)(SiO4)2) 64890-77-3 67733-94-2
(concentration dependence of electromotive force in SmCo0.8Ti0.2O3 + Pt|sodium-conducting solid **electrolyte**|Na0.65CoO2 cell)
IT **125649-10-7**, Cobalt manganese samarium oxide (Co0.8Mn0.2SmO3)
163263-28-3, Cobalt manganese samarium oxide (CoMnSm2O6)
208525-68-2, Cobalt samarium titanium oxide (Co0.9SmTi0.1O3)
208525-70-6, Cobalt samarium titanium oxide (Co0.8SmTi0.2O3)
208525-71-7, Cobalt samarium titanium oxide (Co0.5SmTi0.5O3)
208525-72-8, Cobalt manganese samarium oxide (Co0.9Mn0.1SmO3)
(conductivity of complex oxide with perovskite structure)
IT 7782-44-7, Oxygen, uses
(potentiometry of the interface between a solid sodium-conducting **electrolyte** and SmCo1-xMxO3 (M = Ti, Mn) in the presence of oxygen)
IT 7440-23-5, Sodium, properties
(potentiometry of the interface between a solid sodium-conducting **electrolyte** and SmCo1-xMxO3 (M = Ti, Mn) in the presence of oxygen)
IT 12005-16-2, β''-Alumina 12005-48-0, β-Alumina
(sodium-conducting solid **electrolyte**; concentration dependence of electromotive force in SmCo0.8Ti0.2O3 + Pt|sodium-conducting solid **electrolyte**|Na0.65CoO2 cell)
REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE

RE FORMAT

L31 ANSWER 31 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1998:283038 HCAPLUS Full-text
DOCUMENT NUMBER: 128:272749
TITLE: Recent advances in planar SOFC development at Tokyo Gas
AUTHOR(S): Ogasawara, K.; Yasuda, I.; Matsuzaki, Y.; Ogiwara, T.; Hishinuma, M.
CORPORATE SOURCE: Fundamental Technology Research Laboratory, Tokyo Gas Co., Ltd, Tokyo, 105, Japan
SOURCE: Proceedings - Electrochemical Society (**1997**), 97-40(Solid Oxide Fuel Cells), 143-152
CODEN: PESODO; ISSN: 0161-6374
PUBLISHER: Electrochemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 16 May 1998
AB The progress and current status of research and development of planar SOFCs at Tokyo Gas are described. By coating the **electrolyte** with samaria-doped ceria (SDC) on the **cathode** side and **doping** YSZ in the Ni/YSZ **anode** with ceria, a high power d. of 0.93 W/cm2 was obtained in single-cells with self-supporting **electrolytes**. These modified **electrode** processing techniques have improved the long-term performance stability as well. A 3-cell stack with an internal-manifold design achieved a high power d. of 0.41 W/cm2, and was successfully operated at fuel utilization up to 80% with CH4-H2O fuels. A kW-class stack is to be assembled and tested to demonstrate the potential advantages of our stack design including high power d. and direct internal reforming of methane. Some research works for reducing the operating temperature are also described.
IT **59707-46-9**, Lanthanum manganese strontium oxide
(recent advances in planar solid state fuel cell development at Tokyo Gas)
RN 59707-46-9 HCAPLUS
CN Lanthanum manganese strontium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Sr	x	7440-24-6
Mn	x	7439-96-5
La	x	7439-91-0

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
IT 7440-02-0, Nickel, uses 55575-06-9, Cerium samarium oxide **59707-46-9**, Lanthanum manganese strontium oxide 113482-02-3, Yttrium zirconium oxide (Y0.06Zr0.97O2.03) 114168-16-0, Yttrium zirconium oxide (Y0.16Zr0.92O2.08)
(recent advances in planar solid state fuel cell development at Tokyo Gas)
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 32 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1998:274487 HCAPLUS Full-text
DOCUMENT NUMBER: 129:21817
TITLE: Fluorite-like mixed conductors in the oxide

systems Bi(Y,M)O1.5±δ (M=Pr, Co) and Ce(Gd,Me)O2-δ (Me=Co, Mn)

AUTHOR(S): Naumovich, E. N.; Kharton, V. V.; Kovalevsky, A. V.; Samokhval, V. V.

CORPORATE SOURCE: Institute of Physico-Chemical Problems, Belarus State University, Minsk, 220080, Belarus

SOURCE: Proceedings - Electrochemical Society (**1998**), 97-24(Ionic and Mixed Conducting Ceramics), 496-508
CODEN: PESODO; ISSN: 0161-6374

PUBLISHER: Electrochemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 13 May 1998

AB Formation of continuous series of solid solns. with mixed ionic and electronic conductivity was ascertained in the (Bi1-xYxO1.5)1-y(PrO1.83)y oxide system at x = 0.25 - 0.50 and y = 0 - 0.15. The O ion transference number of the ceramics containing praseodimia is 0.80 ± 0.15. For the (Bi1-xCox)1-yYyO1.5-δ ternary system, fluorite-type solid solns. formed at $0 < x \leq 0.30$ and $y \geq 0.10$. The electronic conductivity of Bi(Y,Co)O1.5 increases with cobalt concentration The ionic conductivity of the Bi(Y,Co)O1.5 ceramic is close to that of Bi(Y)O1.5 solid electrolyte. The solid solubility limit of cobalt and **manganese** in gadolinia-**doped** ceria at temps. below 1000 K is approx. 10 mol.%. **Doping** by transition metals results in increasing electronic conductivity and oxygen permeability of the solid solns. Ce(Gd,Co)O2-δ and Ce(Gd,Mn)O2-δ.

IT **207741-95-5DP**, Cerium gadolinium manganese oxide (Ce(Gd,Mn)O2), oxygen-deficient **207742-16-3DP**, Cerium gadolinium manganese oxide (Ce0.75Gd0.2Mn0.05O2), oxygen-deficient **207742-17-4DP**, Cerium gadolinium manganese oxide (Ce0.7Gd0.2Mn0.1O2), oxygen-deficient **207742-18-5DP**, Cerium gadolinium manganese oxide (Ce0.65Gd0.2Mn0.15O2), oxygen-deficient **207742-20-9DP**, Cerium gadolinium manganese oxide (Ce0.6Gd0.2Mn0.2O2), oxygen-deficient **207742-22-1DP**, Cerium gadolinium manganese oxide (Ce0.5Gd0.2Mn0.3O2), oxygen-deficient **207742-24-3DP**, Cerium gadolinium manganese oxide (Ce0.4Gd0.2Mn0.4O2), oxygen-deficient
(preparation and ionic and electronic conductivity and oxygen permeability of ceramic solid solns. based on bismuth oxide and ceria for solid electrolytes)

RN 207741-95-5 HCAPLUS

CN Cerium gadolinium manganese oxide (Ce(Gd,Mn)O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Gd	0 - 1	7440-54-2
Ce	1	7440-45-1
Mn	0 - 1	7439-96-5

RN 207742-16-3 HCAPLUS

CN Cerium gadolinium manganese oxide (Ce0.75Gd0.2Mn0.05O2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2

Gd	0.2	7440-54-2
Ce	0.75	7440-45-1
Mn	0.05	7439-96-5

RN 207742-17-4 HCAPLUS
CN Cerium gadolinium manganese oxide (Ce0.7Gd0.2Mn0.1O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Gd	0.2	7440-54-2
Ce	0.7	7440-45-1
Mn	0.1	7439-96-5

RN 207742-18-5 HCAPLUS
CN Cerium gadolinium manganese oxide (Ce0.65Gd0.2Mn0.15O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Gd	0.2	7440-54-2
Ce	0.65	7440-45-1
Mn	0.15	7439-96-5

RN 207742-20-9 HCAPLUS
CN Cerium gadolinium manganese oxide (Ce0.6Gd0.2Mn0.2O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Gd	0.2	7440-54-2
Ce	0.6	7440-45-1
Mn	0.2	7439-96-5

RN 207742-22-1 HCAPLUS
CN Cerium gadolinium manganese oxide (Ce0.5Gd0.2Mn0.3O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Gd	0.2	7440-54-2
Ce	0.5	7440-45-1
Mn	0.3	7439-96-5

RN 207742-24-3 HCAPLUS
CN Cerium gadolinium manganese oxide (Ce0.4Gd0.2Mn0.4O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2

Gd	0.2	7440-54-2
Ce	0.4	7440-45-1
Mn	0.4	7439-96-5

CC 76-2 (Electric Phenomena)
Section cross-reference(s): 57, **72**

IT 12338-00-0P, Bismuth cobalt oxide (BiCoO3) 136720-70-2P, Bismuth praseodymium yttrium oxide (Bi0.42Pr0.15Y0.42O1.55) 136720-71-3P, Bismuth praseodymium yttrium oxide (Bi0.45Pr0.1Y0.45O1.53) 136720-72-4P, Bismuth praseodymium yttrium oxide (Bi0.48Pr0.05Y0.48O1.52) 136720-73-5P, Bismuth praseodymium yttrium oxide (Bi0.49Pr0.02Y0.49O1.51) 136720-74-6P, Bismuth praseodymium yttrium oxide (Bi0.51Pr0.15Y0.34O1.55) 136720-75-7P, Bismuth praseodymium yttrium oxide (Bi0.54Pr0.1Y0.36O1.53) 136720-76-8P, Bismuth praseodymium yttrium oxide (Bi0.57Pr0.05Y0.38O1.52) 136720-77-9P, Bismuth praseodymium yttrium oxide (Bi0.59Pr0.02Y0.39O1.51) 136720-78-0P, Bismuth praseodymium yttrium oxide (Bi0.6Pr0.15Y0.26O1.55) 136720-79-1P, Bismuth praseodymium yttrium oxide (Bi0.63Pr0.1Y0.27O1.53) 136720-80-4P, Bismuth praseodymium yttrium oxide (Bi0.66Pr0.05Y0.28O1.52) 136720-81-5P, Bismuth praseodymium yttrium oxide (Bi0.69Pr0.02Y0.29O1.51) 136720-82-6P, Bismuth praseodymium yttrium oxide (Bi0.64Pr0.15Y0.21O1.55) 136720-83-7P, Bismuth praseodymium yttrium oxide (Bi0.68Pr0.1Y0.22O1.53) 136720-84-8P, Bismuth praseodymium yttrium oxide (Bi0.71Pr0.05Y0.24O1.52) 136720-85-9P, Bismuth praseodymium yttrium oxide (Bi0.74Pr0.02Y0.24O1.51) 142567-80-4P, Bismuth cobalt oxide (Bi0.95Co0.05O1.5) 142568-19-2P, Bismuth cobalt yttrium oxide (Bi0.27Co0.63Y0.1O1.5) 142568-20-5P, Bismuth cobalt yttrium oxide (Bi0.36Co0.54Y0.1O1.5) 142568-21-6P, Bismuth cobalt yttrium oxide (Bi0.45Co0.45Y0.1O1.5) 142568-22-7P, Bismuth cobalt yttrium oxide (Bi0.54Co0.36Y0.1O1.5) 142568-23-8P, Bismuth cobalt yttrium oxide (Bi0.63Co0.27Y0.1O1.5) 142568-24-9P, Bismuth cobalt yttrium oxide (Bi0.72Co0.18Y0.1O1.5) 142568-25-0P, Bismuth cobalt yttrium oxide (Bi0.81Co0.09Y0.1O1.5) 142568-26-1P, Bismuth cobalt oxide (Bi0.6Co0.4O1.5) 142568-27-2P, Bismuth cobalt oxide (Bi0.7Co0.3O1.5) 142568-28-3P, Bismuth cobalt oxide (Bi0.9Co0.1O1.5) 142584-46-1P, Bismuth cobalt oxide (Bi0.8Co0.2O1.5) 184022-86-4DP, Cerium cobalt gadolinium oxide (Ce0.88Co0.02Gd0.1O2), oxygen-deficient 184022-93-3DP, Cerium cobalt gadolinium oxide (Ce0.85Co0.05Gd0.1O2), oxygen-deficient 184023-00-5DP, Cerium cobalt gadolinium oxide (Ce0.8Co0.1Gd0.1O2), oxygen-deficient 184023-08-3DP, Cerium cobalt gadolinium oxide (Ce0.75Co0.15Gd0.1O2), oxygen-deficient 184023-15-2DP, Cerium cobalt gadolinium oxide (Ce0.7Co0.2Gd0.1O2), oxygen-deficient 184023-19-6DP, Cerium cobalt gadolinium oxide (Ce0.6Co0.3Gd0.1O2), oxygen-deficient 207741-91-1P, Bismuth praseodymium yttrium oxide (Bi0.42-0.75Pr0-0.15Y0.21-0.5O1.5-1.55) 207741-92-2DP, Bismuth cobalt yttrium oxide (Bi0.63-1Co0-0.3Y0-0.1O1.5), oxygen-deficient 207741-93-3P, Bismuth cobalt yttrium oxide (Bi(Co,Y)O1.5) 207741-94-4DP, Cerium cobalt gadolinium oxide (Ce(Co,Gd)O2), oxygen-deficient **207741-95-5DP**, Cerium gadolinium manganese oxide (Ce(Gd,Mn)O2), oxygen-deficient **207742-16-3DP**, Cerium gadolinium manganese oxide (Ce0.75Gd0.2Mn0.05O2), oxygen-deficient **207742-17-4DP**, Cerium gadolinium manganese oxide (Ce0.7Gd0.2Mn0.1O2), oxygen-deficient **207742-18-5DP**, Cerium gadolinium manganese oxide (Ce0.65Gd0.2Mn0.15O2), oxygen-deficient **207742-20-9DP**, Cerium gadolinium manganese oxide (Ce0.6Gd0.2Mn0.2O2), oxygen-deficient **207742-22-1DP**, Cerium gadolinium manganese oxide (Ce0.5Gd0.2Mn0.3O2), oxygen-deficient **207742-24-3DP**, Cerium gadolinium manganese oxide (Ce0.4Gd0.2Mn0.4O2),

oxygen-deficient
(preparation and ionic and electronic conductivity and oxygen permeability of
ceramic solid solns. based on bismuth oxide and ceria for solid electrolytes)
REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 33 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1998:48951 HCAPLUS Full-text
DOCUMENT NUMBER: 128:90969
TITLE: Characteristics of Pr1-xMxMnO3 (M=Ca, Sr) as **cathode** material in solid oxide fuel cells
AUTHOR(S): Rim, Hyung-Ryul; Jeung, Soon-Ki; Jung, Euney; Lee, Ju-Seong
CORPORATE SOURCE: Department of Industrial Chemistry, Hanyang University, Seoul, 133-791, S. Korea
SOURCE: Materials Chemistry and Physics (**1998**), 52(1), 54-59
CODEN: MCHPDR; ISSN: 0254-0584
PUBLISHER: Elsevier Science S.A.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 29 Jan 1998
AB Calcium and strontium-doped praseodymium manganite powders were prepared as **cathode** materials in solid oxide fuel cells. The characteristics of these materials such as particle size distribution, elec. conductivity, **cathodic** polarization, thermal expansion, and reactivity with **electrolyte** were investigated. It was found the optimum **doping** content of Ca and Sr was 30 mol% and that Ca-doped PrMnO3 had higher elec. conductivity and lower **cathodic** overpotential than Sr-doped PrMnO3. Further, the 30 mol% Ca-doped PrMnO3 had not reacted with Y2O3 stabilized ZrO2 (YSZ) in the temperature range 1000-1200° for 100 h and it had a thermal expansion coefficient close to that of YSZ. It was found that 30 mol% Ca-doped PrMnO3 was satisfactory for use as a **cathode** material in solid oxide fuel cells.
IT **112510-20-0**, Manganese praseodymium strontium oxide MnPr0.7Sr0.3O3 **144698-18-0**, Manganese praseodymium strontium oxide MnPr0.9Sr0.1O3 **144698-21-5**, Manganese praseodymium strontium oxide MnPr0.5Sr0.5O3 **186338-08-9**, Manganese praseodymium strontium oxide MnPr0.3Sr0.7O3
(characteristics of Pr1-xMxMnO3 (M=Ca, Sr) as **cathode** material in solid oxide fuel cells)
RN 112510-20-0 HCAPLUS
CN Manganese praseodymium strontium oxide (MnPr0.7Sr0.3O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.3	7440-24-6
Pr	0.7	7440-10-0
Mn	1	7439-96-5

RN 144698-18-0 HCAPLUS
CN Manganese praseodymium strontium oxide (MnPr0.9Sr0.1O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component

		Registry Number
O	3	17778-80-2
Sr	0.1	7440-24-6
Pr	0.9	7440-10-0
Mn	1	7439-96-5

RN 144698-21-5 HCAPLUS
CN Manganese praseodymium strontium oxide (MnPr0.5Sr0.5O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.5	7440-24-6
Pr	0.5	7440-10-0
Mn	1	7439-96-5

RN 186338-08-9 HCAPLUS
CN Manganese praseodymium strontium oxide (MnPr0.3Sr0.7O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.7	7440-24-6
Pr	0.3	7440-10-0
Mn	1	7439-96-5

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST fuel cell **cathode** doped praseodymium manganite
IT **Cathodic** polarization
Electric conductivity
Fuel cell **cathodes**
Particle size distribution
Thermal expansion
(characteristics of Pr1-xMxMnO3 (M=Ca, Sr) as **cathode** material in solid oxide fuel cells)
IT Fuel cell **electrolytes**
(yttria-stabilized zirconia, reaction of, with **cathodes**; characteristics of Pr1-xMxMnO3 (M=Ca, Sr) as **cathode** material in solid oxide fuel cells)
IT 1314-23-4, Zirconia, uses
(Y2O3-stabilized, **electrolyte**; characteristics of Pr1-xMxMnO3 (M=Ca, Sr) as **cathode** material in solid oxide fuel cells)
IT 1314-36-9, Yttria, uses
(ZrO2 stabilized with, **electrolyte**; characteristics of Pr1-xMxMnO3 (M=Ca, Sr) as **cathode** material in solid oxide fuel cells)
IT 12362-87-7, Manganese praseodymium oxide MnPrO3 **112510-20-0**, Manganese praseodymium strontium oxide MnPr0.7Sr0.3O3 **144698-18-0**, Manganese praseodymium strontium oxide MnPr0.9Sr0.1O3 **144698-21-5**, Manganese praseodymium strontium oxide MnPr0.5Sr0.5O3 171525-81-8, Calcium manganese praseodymium oxide Ca0.3MnPr0.7O3 171610-86-9, Calcium manganese praseodymium oxide Ca0.1MnPr0.9O3 173260-65-6, Calcium manganese praseodymium

oxide Ca0.5MnPr0.5O3 178861-68-2, Calcium manganese praseodymium oxide Ca0.7MnPr0.3O3 **186338-08-9**, Manganese praseodymium strontium oxide MnPr0.3Sr0.7O3
(characteristics of Pr1-xMxMnO3 (M=Ca, Sr) as **cathode** material in solid oxide fuel cells)

IT 114168-16-0, Tz 8y
(**electrolyte**; characteristics of Pr1-xMxMnO3 (M=Ca, Sr) as **cathode** material in solid oxide fuel cells)

IT 12165-18-3, Praseodymium zirconium oxide Pr2Zr2O7
(reaction product, with **electrolyte**; characteristics of Pr1-xMxMnO3 (M=Ca, Sr) as **cathode** material in solid oxide fuel cells)

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 34 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1998:9764 HCAPLUS Full-text
DOCUMENT NUMBER: 128:50629
TITLE: Stability of solid oxide fuel cell materials
AUTHOR(S): Armstrong, T. R.; Bates, J. L.; Coffey, G. W.; Pederson, L. R.; Raney, P. J.; Stevenson, J. W.; Weber, W. J.; Zheng, F.
CORPORATE SOURCE: Pacific Northwest National Laboratory, Richland, WA, 99352, USA
SOURCE: Oak Ridge National Laboratory, [Report] ORNL/FMP (United States) (**1996**), ORNL/FMP-96/1, Proceedings of the Tenth Annual Conference on Fossil Energy Materials, 1996, 301-310
CODEN: ORFMEY
DOCUMENT TYPE: Report
LANGUAGE: English
ED Entered STN: 09 Jan 1998

AB Chromite interconnection materials in an SOFC are exposed to both highly oxidizing conditions at the **cathode** and to highly reducing conditions at the **anode**. Because such conditions could lead to component failure, we have evaluated thermal, elec., chemical, and structural stabilities of these materials as a function of temperature and oxygen partial pressure. The crystal lattice of the chromites was shown to expand for oxygen partial pressures smaller than 10-10 atm, which could lead to cracking and debonding in an SOFC. Highly substituted lanthanum chromite compns. were the most susceptible to lattice expansion; yttrium chromites showed better dimensional stability by more than a factor of two. New chromite compns. were developed that showed little tendency for lattice expansion under strongly reducing conditions, yet provided a good thermal expansion match to other fuel cell components. Use of these new chromite interconnect compns. should improve long-term SOFC performance, particularly for planar cell configurations. Thermodn. properties of substituted lanthanum manganite **cathode** compns. have been determined through measurement of electromotive force as a function of temperature Critical oxygen decomposition pressures for SR and Ca-substituted lanthanum manganites were established using cells based on a zirconium **electrolyte**. Strontium oxide and calcium oxide activities in a lanthanum manganite matrix were determined using cells based on strontium fluoride and calcium fluoride **electrolytes**, resp. The compositional range of single-phase behavior of these ABO3-type perovskites was established as a function of A/B cation ratios and the extent of acceptor **doping**. Before this work, very little thermodn. information was in existence for substituted manganite compns. Such information is needed to predict the long-term stability of solid oxide fuel cell assemblies.

IT **64296-91-9**, Lanthanum manganese strontium oxide la0.5mnsr0.5o3

106390-66-3, Lanthanum manganese strontium oxide la0.7mnsr0.3o3 **108916-22-9**, Lanthanum manganese strontium oxide la0.8mnsr0.2o3
(substituted lanthanum and yttrium chromite stability as interconnects for solid oxide fuel cells)

RN 64296-91-9 HCAPLUS
CN Lanthanum manganese strontium oxide (LaMn2SrO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Sr	1	7440-24-6
Mn	2	7439-96-5
La	1	7439-91-0

RN 106390-66-3 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.7MnSr0.3O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.3	7440-24-6
Mn	1	7439-96-5
La	0.7	7439-91-0

RN 108916-22-9 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.8MnSr0.2O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.2	7440-24-6
Mn	1	7439-96-5
La	0.8	7439-91-0

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76
IT 12031-12-8, Lanthanum manganese oxide lamno3 12182-76-2, Chromium yttrium oxide cryo3 **64296-91-9**, Lanthanum manganese strontium oxide la0.5mnsr0.5o3 **106390-66-3**, Lanthanum manganese strontium oxide la0.7mnsr0.3o3 **108916-22-9**, Lanthanum manganese strontium oxide la0.8mnsr0.2o3 140392-21-8, Calcium chromium cobalt yttrium oxide ca0.3cr0.8co0.2y0.7o3 140392-23-0, Calcium chromium yttrium oxide ca0.3cry0.7o3 200067-85-2
(substituted lanthanum and yttrium chromite stability as interconnects for solid oxide fuel cells)
REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 35 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1997:792670 HCAPLUS Full-text
DOCUMENT NUMBER: 128:107651
TITLE: Physicochemical and electrochemical properties of the La0.6Sr0.4Mn1-x(Co, Ni)xO3 **electrode**

materials

AUTHOR(S): Tikhonova, L. A.; Zhuk, P. P.; Poluyan, A. F.; Al'fer, S. A.; Vecher, A. A.
CORPORATE SOURCE: Research Institute of Physicochemical Problems, Belarussian State University, Minsk, 220080, Belarus

SOURCE: Russian Journal of Electrochemistry (Translation of Elektrokhimiya) (**1997**), 33(11), 1236-1241
CODEN: RJELE3; ISSN: 1023-1935
PUBLISHER: MAIK Nauka/Interperiodica Publishing
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 19 Dec 1997

AB The structural, thermal, elec., and electrochem. properties of the **electrode** materials La0.6Sr0.4Mn1-x(Co,Ni)xO3 (x = 0-0.05) were studied. Adding transition metals in cubic perovskites raises the Mn4+ ion concentration from 49 to 57%. The manganite conductivity rises at room temperature from 250 to 700 S cm-1 at x = 0 and x = 0.02 Ni, resp. At 300-1100 K, all samples have metallic conduction; samples with x = 0.02 have the maximum conductivity The coefficient of linear thermal expansion is virtually independent of the **doping** and varies in the region (13.9-14.6) + 10-6 K-1. In the temperature range 300 to 1100 K, changes in the resistance parameter of the interface between the **electrode** and solid **electrolyte** are of a semiconductor nature. The activation energy for conduction varies from 6.7 to 23.4 kJ mol-1. The min. magnitude of the resistance parameter is intrinsic to samples coated with manganite of the compns. corresponding x = 0.05. Increasing the **electrode** layer thickness from 20 to 100 mg cm-2 reduces the resistance parameter 2 to 20 times. The surface resistance of samples of compns. studied remains almost invariable at Po2 = 102-105 Pa. Introducing additives of transition metals in La0.6Sr0.4MnO3 reduces the polarization resistance of the gas-**electrode**-solid **electrolyte** interface. At 773-1073 K and 102-105 Pa, the min. values of the polarization resistance are intrinsic to **electrode** layers 50 mg cm-2 thick, containing 0.05 mol Co or Ni.

IT **108916-21-8**, Lanthanum manganese strontium oxide (La0.6MnSr0.4O3)
(physicochem. and electrochem. properties of **electrode** material of)

RN 108916-21-8 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.6MnSr0.4O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.4	7440-24-6
Mn	1	7439-96-5
La	0.6	7439-91-0

CC 72-2 (**Electrochemistry**)
Section cross-reference(s): 76

ST physicochem lanthanum strontium transition metal oxide; electrochem lanthanum strontium transition metal oxide; **electrode** lanthanum strontium transition metal oxide; cond lanthanum strontium transition metal oxide; polarization lanthanum strontium transition metal oxide

IT Partial pressure
(elec. resistance of La0.6Sr0.4Mn1-x(Co)xO3 or La0.6Sr0.4Mn1-x(Ni)xO3 **electrodes** dependence on partial pressure of oxygen)

IT **Electrodes**
(physicochem. and electrochem. properties of La0.6Sr0.4Mn1-x(Co)xO3 or La0.6Sr0.4Mn1-x(Ni)xO3)
IT Electric conductivity
Electric resistance
Polarization resistance
Thermal expansion
(physicochem. and electrochem. properties of La0.6Sr0.4Mn1-x(Co)xO3 or La0.6Sr0.4Mn1-x(Ni)xO3 **electrodes**)
IT 7782-44-7, Oxygen, properties
(elec. resistance of La0.6Sr0.4Mn1-x(Co)xO3 or La0.6Sr0.4Mn1-x(Ni)xO3 **electrodes** dependence on partial pressure of)
IT **108916-21-8**, Lanthanum manganese strontium oxide (La0.6MnSr0.4O3) 123921-92-6, Lanthanum manganese nickel strontium oxide (La0.6Mn0.98ni0.02Sr0.4O3) 123921-93-7, Lanthanum manganese nickel strontium oxide (La0.6Mn0.95ni0.05Sr0.4O3) 130679-99-1, Cobalt lanthanum manganese strontium oxide (Co0.02La0.6Mn0.98Sr0.4O3) 201422-68-6 201422-69-7 201422-70-0
(physicochem. and electrochem. properties of **electrode** material of)
REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 36 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1997:576427 HCAPLUS Full-text
DOCUMENT NUMBER: 127:266690
TITLE: A study on the synthesis of Gd-doped CeO2 and Sr-doped LaMnO3 powders and phase stability in their interface
AUTHOR(S): Jung, Seunghun; Kim, Namjin; Lee, Dikyol
CORPORATE SOURCE: Dep. of Mater. Sci. & Eng., Korea Univ., S. Korea
SOURCE: Yoop Hakhoechi (**1997**), 34(6), 652-658
CODEN: YPHJAP; ISSN: 0372-7807
PUBLISHER: Korean Ceramic Society
DOCUMENT TYPE: Journal
LANGUAGE: Korean
ED Entered STN: 10 Sep 1997
AB The phase stability in the interface of Sr-doped LaMnO3(LSM)/Gd-doped CeO2(CGO) was examined in this study to check the feasibility of using LSM as the **cathode** material in a low-temperature SOFC (solid oxide fuel cell) using CGO as the **electrolyte**. For the purpose, CGO powders of Ce0.82Gd0.18O1.91 and two LSM powders having different compns., La0.9Sr0.1MnO3(LSM10) and La0.5Sr0.5MnO3(LSM50), were synthesized by the Pechini method. Then, specimens having the LSM/CGO interface were heat-treated at 1300°C for up to 3 days, and analyzed by XRD and STEM/EDX. Face-centered cubic CGO powders of less than 10 nm size were obtained by calcination of polymeric precursor formed in the process at 450°C. Higher calcination temperature of 700°C was necessary for monoclinic LSM10 and cubic LSM50 powders. LSM powders were coarser than CGO and observed to be 50-100 nm. No trace of LSM-CGO interaction product was found in the XRD pattern. Also it was known from the concentration profile in the vicinity of the interface that interdiffusion occurred over only a small penetration depth of .apprx.100 nm.
IT **64296-91-9P**, Lanthanum manganese strontium oxide La0.5MnSr0.5O3 **110781-51-6P**, Lanthanum manganese strontium oxide La0.9MnSr0.1O3
(powder; preparation and interface reaction of Gd-doped CeO2 and Sr-doped LaMnO3 powders)
RN 64296-91-9 HCAPLUS
CN Lanthanum manganese strontium oxide (LaMn2SrO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Sr	1	7440-24-6
Mn	2	7439-96-5
La	1	7439-91-0

RN 110781-51-6 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.9MnSr0.1O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.1	7440-24-6
Mn	1	7439-96-5
La	0.9	7439-91-0

CC 57-2 (Ceramics)
Section cross-reference(s): 49, **52**
IT Solid **electrolytes**
(cerium gadolinium oxide; preparation and interface reaction of Gd-doped CeO2 and Sr-doped LaMnO3 powders)
IT **Cathodes**
(lanthanum strontium manganate; preparation and interface reaction of Gd-doped CeO2 and Sr-doped LaMnO3 powders)
IT 7440-54-2P, Gadolinium, preparation
(**dopant**, ceria powder; preparation and interface reaction of Gd-doped CeO2 and Sr-doped LaMnO3 powders)
IT 7440-24-6P, Strontium, preparation
(**dopant**, lanthanum manganate powder; preparation and interface reaction of Gd-doped CeO2 and Sr-doped LaMnO3 powders)
IT 1306-38-3P, Cerium oxide (CeO2), preparation 12031-12-8P, Lanthanum manganese oxide (LaMnO3) **64296-91-9P**, Lanthanum manganese strontium oxide La0.5MnSr0.5O3 **110781-51-6P**, Lanthanum manganese strontium oxide La0.9MnSr0.1O3 115927-77-0P, Cerium gadolinium oxide Ce0.82Gd0.18O1.91
(powder; preparation and interface reaction of Gd-doped CeO2 and Sr-doped LaMnO3 powders)

L31 ANSWER 37 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1997:562007 HCAPLUS Full-text
DOCUMENT NUMBER: 127:236692
TITLE: Behavior of SrRu1-xMexO3 (Me = Fe, Co, Mn) perovskites as supercapacitor materials
AUTHOR(S): Wilde, P. M.; Guther, T. J.; Oesten, R.; Garche, J.
CORPORATE SOURCE: Division 3: Energy Storage and Conversion, Center for Solar Energy and Hydrogen Research Baden-Wuerttemberg, Ulm, D-89081, Germany
SOURCE: Proceedings - Electrochemical Society (**1997**), 97-18(Batteries for Portable Applications and Electric Vehicles), 613-622
CODEN: PESODO; ISSN: 0161-6374
PUBLISHER: Electrochemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 04 Sep 1997

AB New perovskite type materials ABO3 were investigated for applications as supercapacitor active materials. The materials are alkaline earth ruthenates like SrRuO3. Specific capacitances up to 28 F/g for undoped SrRuO3, prepared at 500 °C, were measured. The replacement of ruthenium by other transition metal cations like cobalt, iron and manganese strongly influences the electrochem. properties. With increasing amount of **dopants**, especially cobalt and iron, the electrochem. stability window decreases. There is no evidence that cobalt and iron contribute to the redox processes, which deliver most of the capacitance in these materials. The **manganese doped** compds. show a different behavior. The manganese ions contribute to the redox processes and the capacitance is found to increase with increasing **manganese doping** while the stability window of the electrolyte remains nearly unchanged.

IT **195390-57-9**, Manganese ruthenium strontium oxide (Mn0.1Ru0.9SrO3) **195390-58-0**, Manganese ruthenium strontium oxide (Mn0.2Ru0.8SrO3) **195390-59-1**, Manganese ruthenium strontium oxide (Mn0.3Ru0.7SrO3) **195390-60-4**, Manganese ruthenium strontium oxide (Mn0.4Ru0.6SrO3)
(behavior of SrRu1-xMexO3 perovskites as supercapacitor materials)

RN 195390-57-9 HCAPLUS

CN Manganese ruthenium strontium oxide (Mn0.1Ru0.9SrO3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	1	7440-24-6
Ru	0.9	7440-18-8
Mn	0.1	7439-96-5

RN 195390-58-0 HCAPLUS

CN Manganese ruthenium strontium oxide (Mn0.2Ru0.8SrO3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	1	7440-24-6
Ru	0.8	7440-18-8
Mn	0.2	7439-96-5

RN 195390-59-1 HCAPLUS

CN Manganese ruthenium strontium oxide (Mn0.3Ru0.7SrO3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	1	7440-24-6
Ru	0.7	7440-18-8
Mn	0.3	7439-96-5

RN 195390-60-4 HCAPLUS

CN Manganese ruthenium strontium oxide (Mn0.4Ru0.6SrO3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2

Sr	1	7440-24-6
Ru	0.6	7440-18-8
Mn	0.4	7439-96-5

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76

IT 122026-80-6, Cobalt ruthenium strontium oxide co0.2ru0.8sro3
195390-50-2, Iron ruthenium strontium oxide (Fe0.1Ru0.9SrO3)
195390-51-3, Iron ruthenium strontium oxide (Fe0.2Ru0.8SrO3)
195390-52-4, Iron ruthenium strontium oxide (Fe0.3Ru0.7SrO3)
195390-53-5, Iron ruthenium strontium oxide (Fe0.4Ru0.6SrO3)
195390-54-6, Cobalt ruthenium strontium oxide (Co0.1Ru0.9SrO3)
195390-55-7, Cobalt ruthenium strontium oxide (Co0.3Ru0.7SrO3)
195390-56-8, Cobalt ruthenium strontium oxide (Co0.4Ru0.6SrO3)
195390-57-9, Manganese ruthenium strontium oxide (Mn0.1Ru0.9SrO3) **195390-58-0**, Manganese ruthenium strontium oxide (Mn0.2Ru0.8SrO3) **195390-59-1**, Manganese ruthenium strontium oxide (Mn0.3Ru0.7SrO3) **195390-60-4**, Manganese ruthenium strontium oxide (Mn0.4Ru0.6SrO3)
(behavior of SrRu1-xMexO3 perovskites as supercapacitor materials)

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 38 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1997:461272 HCAPLUS Full-text
DOCUMENT NUMBER: 127:178747
TITLE: Chemical compatibility of LaFeO3-base perovskite structures at the interface of the **electrolyte** of a solid oxide fuel cell (SOFC)
AUTHOR(S): Kindermann, L.; Hilpert, K.; Nickel, H.
CORPORATE SOURCE: Institut Werkstoffe Energietechnik, Forschungszentrum Julich G.m.b.H., Juelich, D-52425, Germany
SOURCE: Berichte des Forschungszentrums Juelich (**1997**), Juel-3382, 1-129 pp.
CODEN: FJBEE5; ISSN: 0366-0885
DOCUMENT TYPE: Report
LANGUAGE: German
ED Entered STN: 23 Jul 1997

AB For reducing the operation temperature of a solid oxide fuel cell from 1000° to 850° the development of a new and advanced **cathode** material is a necessary demand. The investigation of the chemical stability and compatibility of a new material based on LaFeO3 was of main interest in the work. In addition the elec. properties and the thermal expansion coefficient of some selected compns. were investigated. Also expts. to determine the oxygen vacancy formation were carried out. Physicochem. compatibilities of different compns., (La0.6A0.4)zFe0.8Mo.2O3 (A = Sr, Ca; M = Cr, Mn, Co, Ni; z = 0.9, 1.0) and (La1-xSrx)zFe1-yMnyO3 (x = 0-0.4; y = 0-1; z = 0.9, 0.95, 1.0), with the solid **electrolyte** zirconia-yttria (8 mol% Y2O3) were investigated. Powder mixts. of these perovskites were annealed at 1000°, 1100° and 1400° for time periods up to 3600 h in a high temperature furnace. After quenching, the samples were analyzed by XRD, SEM/EDX and TEM/EDX for identification of the reaction products. Inter-diffusion processes between the perovskite material and the **electrolyte** lead to the formation of new phases. High Sr content on A site lead to the formation of SrZrO3 whereas La2Zr2O7 was detected in powder mixts. with high La concentration Samples with Ca on A site and Co or Ni on B site showed the formation of a CaZrO3 phase while a garnet phase was observed

with M = Cr or Mn. In some cases also monoclinic zirconia was found. Some compns. showed no reaction products. Based on these results it was possible to work out different stability criteria for LaFeO3 based perovskites. Some suggestions were made concerning an **electrolyte** with a modified composition as well as different **dopants** namely Co, Zr or Ir.

IT **12186-38-8**, Iron lanthanum manganese oxide (Fe0.5LaMn0.5O3) **108916-21-8**, Lanthanum manganese strontium oxide (La0.6MnSr0.4O3) **108916-22-9**, Lanthanum manganese strontium oxide (La0.8MnSr0.2O3) **133878-22-5**, Lanthanum manganese strontium oxide (La0.66MnSr0.28O3) **185147-84-6**, Iron lanthanum manganese oxide (Fe0.2La0.95Mn0.8O3) **190204-02-5**, Lanthanum manganese strontium oxide (La0.71MnSr0.24O3)
(chemical compatibility of LaFeO3-base perovskite **cathodes** at interface of YSZ **electrolyte** of a solid oxide fuel cell)

RN 12186-38-8 HCAPLUS
CN Iron lanthanum manganese oxide (FeLa2MnO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Mn	1	7439-96-5
La	2	7439-91-0
Fe	1	7439-89-6

RN 108916-21-8 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.6MnSr0.4O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.4	7440-24-6
Mn	1	7439-96-5
La	0.6	7439-91-0

RN 108916-22-9 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.8MnSr0.2O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.2	7440-24-6
Mn	1	7439-96-5
La	0.8	7439-91-0

RN 133878-22-5 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.66MnSr0.28O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.28	7440-24-6
Mn	1	7439-96-5
La	0.66	7439-91-0

RN 185147-84-6 HCAPLUS
CN Iron lanthanum manganese oxide (Fe0.2La0.95Mn0.8O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Mn	0.8	7439-96-5
La	0.95	7439-91-0
Fe	0.2	7439-89-6

RN 190204-02-5 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.71MnSr0.24O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.24	7440-24-6
Mn	1	7439-96-5
La	0.71	7439-91-0

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57, **72**
ST fuel cell **cathode electrolyte** chem compatibility; perovskite yttria zirconia **electrolyte** interface; lanthanum iron oxide fuel cell **cathode**; iridium **doping** perovskite fuel cell **cathode**
IT Ceramics
Electrode-electrolyte interface
Fuel cell **cathodes**
Fuel cell **electrolytes**
Perovskite-type crystals
(chemical compatibility of LaFeO3-base perovskite **cathodes** at interface of YSZ **electrolyte** of a solid oxide fuel cell)
IT Polarization resistance
Thermal expansion
(of LaFeO3-base perovskite fuel cell **cathodes**)
IT 12022-43-4, Iron lanthanum oxide (FeLaO3) 12031-12-8, Lanthanum manganese oxide (LaMnO3) **12186-38-8**, Iron lanthanum manganese oxide (Fe0.5LaMn0.5O3) **108916-21-8**, Lanthanum manganese strontium oxide (La0.6MnSr0.4O3) **108916-22-9**, Lanthanum manganese strontium oxide (La0.8MnSr0.2O3) 109546-91-0, Iron lanthanum strontium oxide (FeLa0.8Sr0.2O3) 110641-92-4, Iron lanthanum manganese strontium oxide (Fe0.2La0.7Mn0.8Sr0.3O3) 110758-52-6, Iron lanthanum strontium oxide (FeLa0.6Sr0.4O3) 120949-38-4, Iron lanthanum manganese strontium oxide (Fe0.5La0.7Mn0.5Sr0.3O3) **133878-22-5**, Lanthanum manganese strontium oxide (La0.66MnSr0.28O3) 148595-66-8, Cobalt iron lanthanum strontium oxide (Co0.2Fe0.8La0.6Sr0.4O3) 158307-83-6, Calcium iron lanthanum manganese oxide (Ca0.4Fe0.8La0.6Mn0.2O3) 158307-84-7, Iron lanthanum manganese strontium oxide (Fe0.8La0.6Mn0.2Sr0.4O3) 159423-43-5, Calcium cobalt iron lanthanum oxide (Ca0.4Co0.2Fe0.8La0.6O3) 164723-14-2, Iron lanthanum manganese strontium oxide (Fe0.2La0.8Mn0.8Sr0.2O3) 166188-05-2, Calcium iron lanthanum nickel oxide (Ca0.4Fe0.8La0.6Ni0.2O3) 166188-06-3, Calcium

iron lanthanum nickel oxide (Ca0.36Fe0.8La0.54Ni0.2O3) 166188-07-4, Calcium chromium iron lanthanum oxide (Ca0.36Cr0.2Fe0.8La0.54O3) 166188-08-5, Calcium iron lanthanum manganese oxide (Ca0.36Fe0.8La0.54Mn0.2O3) 166188-09-6, Calcium cobalt iron lanthanum oxide (Ca0.36Co0.2Fe0.8La0.54O3) 177080-58-9, Iron lanthanum manganese strontium oxide (Fe0.5La0.6Mn0.5Sr0.4O3) 184045-31-6, Chromium iron lanthanum strontium oxide (Cr0.2Fe0.8La0.6Sr0.4O3) 184045-32-7, Iron lanthanum nickel strontium oxide (Fe0.8La0.6Ni0.2Sr0.4O3) 184045-33-8, Chromium iron lanthanum strontium oxide (Cr0.2Fe0.8La0.54Sr0.36O3) 184045-34-9, Iron lanthanum manganese strontium oxide (Fe0.8La0.54Mn0.2Sr0.36O3) 184045-35-0, Cobalt iron lanthanum strontium oxide (Co0.2Fe0.8La0.54Sr0.36O3) 184045-36-1, Iron lanthanum nickel strontium oxide (Fe0.8La0.54Ni0.2Sr0.36O3) 184839-68-7, Iron lanthanum manganese strontium oxide (Fe0.2La0.86Mn0.8Sr0.1O3) 184839-70-1, Iron lanthanum manganese strontium oxide (Fe0.5La0.86Mn0.5Sr0.1O3) 184839-72-3, Iron lanthanum manganese strontium oxide (Fe0.5La0.66Mn0.5Sr0.28O3) 185147-80-2, Iron lanthanum manganese strontium oxide (Fe0.7La0.7Mn0.3Sr0.3O3) 185147-81-3, Iron lanthanum manganese strontium oxide (Fe0.7La0.76Mn0.3Sr0.19O3) 185147-82-4, Iron lanthanum manganese strontium oxide (Fe0.5La0.72Mn0.5Sr0.18O3) 185147-83-5, Iron lanthanum manganese strontium oxide (Fe0.2La0.76Mn0.8Sr0.19O3) **185147-84-6**, Iron lanthanum manganese oxide (Fe0.2La0.95Mn0.8O3) 185147-85-7, Iron lanthanum manganese strontium oxide (Fe0.7La0.86Mn0.3Sr0.1O3) 185147-86-8, Iron lanthanum manganese strontium oxide (Fe0.7La0.66Mn0.3Sr0.28O3) 185147-87-9, Iron lanthanum manganese strontium oxide (Fe0.2La0.66Mn0.8Sr0.28O3) 185147-88-0, Iron lanthanum manganese strontium oxide (Fe0.7La0.63Mn0.3Sr0.27O3) 185148-62-3, Iron lanthanum manganese strontium oxide (Fe0.8La0.72Mn0.2Sr0.18O3) 188425-10-7, Calcium chromium iron lanthanum oxide (Ca0.4Cr0.2Fe0.8La0.6O3) 190203-97-5, Iron lanthanum manganese strontium oxide (Fe0.5La0.63Mn0.5Sr0.27O3) 190203-98-6, Iron lanthanum manganese strontium oxide (Fe0.2La0.63Mn0.8Sr0.27O3) 190203-99-7, Iron lanthanum manganese strontium oxide (Fe0.2La0.81Mn0.8Sr0.14O3) 190204-00-3, Iron lanthanum manganese strontium oxide (Fe0.2La0.71Mn0.8Sr0.24O3) 190204-01-4, Iron lanthanum manganese strontium oxide (Fe0.5La0.76Mn0.5Sr0.14O3) **190204-02-5**, Lanthanum manganese strontium oxide (La0.71MnSr0.24O3) 190204-03-6, Iron lanthanum manganese strontium oxide (Fe0.1La0.71Mn0.9Sr0.24O3) 191729-80-3, Cobalt iron lanthanum manganese strontium oxide (Co0.05Fe0.5La0.7Mn0.45Sr0.3O3) 193412-94-1 193412-95-2 193412-96-3 193412-97-4, Iron lanthanum manganese strontium oxide (Fe0.2La0.76Mn0.8Sr0.14O3) 193412-98-5 193412-99-6, Iron lanthanum manganese strontium oxide (Fe0.5La0.76Mn0.5Sr0.19O3) 193413-00-2 193413-01-3, Iron lanthanum manganese strontium oxide (Fe0.2La0.9Mn0.8Sr0.1O3) 193413-02-4, Iron lanthanum manganese strontium oxide (Fe0.5La0.9Mn0.5Sr0.1O3) 193413-03-5, Iron lanthanum manganese strontium oxide (Fe0.5La0.8Mn0.5Sr0.2O3) 193413-04-6, Iron lanthanum manganese strontium oxide (Fe0.7La0.9Mn0.3Sr0.1O3) 193413-05-7, Iron lanthanum manganese strontium oxide (Fe0.7La0.8Mn0.3Sr0.2O3) 193413-06-8, Iron lanthanum manganese strontium oxide (Fe0.2La0.81Mn0.8Sr0.09O3) 193413-07-9, Iron lanthanum manganese strontium oxide (Fe0.5La0.81Mn0.5Sr0.09O3) 193413-08-0, Iron lanthanum manganese strontium oxide (Fe0.7La0.81Mn0.3Sr0.09O3) 193413-09-1, Iron lanthanum manganese strontium oxide (Fe0.7La0.72Mn0.3Sr0.18O3) 193413-10-4 193413-11-5 193413-12-6

(chemical compatibility of LaFeO3-base perovskite **cathodes**

at interface of YSZ **electrolyte** of a solid oxide fuel cell)

IT 7439-88-5, Iridium, uses
(chemical compatibility of LaFeO3-base perovskite **cathodes** at interface of YSZ **electrolyte** of a solid oxide fuel cell)

IT 64417-98-7, Yttrium zirconium oxide
(chemical compatibility of LaFeO3-base perovskite **cathodes** at interface of YSZ **electrolyte** of a solid oxide fuel cell)

IT 1314-23-4, Zirconia, uses
(yttria-stabilized; chemical compatibility of LaFeO3-base perovskite **cathodes** at interface of YSZ **electrolyte** of a solid oxide fuel cell)

IT 1314-36-9, Yttria, uses
(zirconia containing; chemical compatibility of LaFeO3-base perovskite **cathodes** at interface of YSZ **electrolyte** of a solid oxide fuel cell)

L31 ANSWER 39 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1997:215197 HCAPLUS Full-text
DOCUMENT NUMBER: 127:20806
TITLE: Electrical and microstructural characterization of (La0.8Sr0.2)(Fe1-xAlx)O3 and (La0.8Sr0.2)(Mn1-xAlx)O3 as possible SOFC **cathode** materials
AUTHOR(S): Holc, Janez; Kuscer, Danjela; Hrovat, Marko; Bernik, Slavko; Drago Kolar
CORPORATE SOURCE: Jozef Stefan Institute, University of Ljubljana, Jamova 39, 61000, Ljubljana, Slovenia
SOURCE: Solid State Ionics (**1997**), 95(3,4), 259-268
CODEN: SSIOD3; ISSN: 0167-2738
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 02 Apr 1997
AB The perovskites with nominal compns. (La0.8Sr0.2)(Fe1-xAlx)O3 and (La0.8Sr0.2)(Mn1-xAlx)O3 (x from 0 to 0.94) were evaluated as possible solid oxide fuel cell (SOFC) **cathodes**. Cell parameters of solid solns. were calculated The elec. and microstructural characteristics and high temperature interactions with YSZ were studied. As compared with 'pure' perovskites, **doping** with strontium and aluminum decreases and increases their specific resistivity, resp. The incorporation of alumina and strontium oxide substantially reduces the sinterability resulting in a rather porous, fine grained microstructure. The reaction rate between perovskite materials and YSZ at high temps. is higher for lanthanum manganites than for lanthanum ferrites, and the partial exchange of cations on 'B' sites with aluminum decreases the reaction rate.

IT **84615-81-6**, Aluminum lanthanum manganese oxide (AlLa2MnO6)
108916-22-9, Lanthanum manganese strontium oxide La0.8MnSr0.2O3 **190664-72-3**, Aluminum lanthanum manganese oxide (Al0.94La2Mn0.06O3)
(elec. and microstructural characterization of (La0.8Sr0.2)(Fe1-xAlx)O3 and (La0.8Sr0.2)(Mn1-xAlx)O3 as possible SOFC **cathode** materials)

RN 84615-81-6 HCAPLUS
CN Aluminum lanthanum manganese oxide (AlLa2MnO6) (9CI) (CA INDEX NAME)

Component	Ratio	Component

		Registry Number
O	6	17778-80-2
Mn	1	7439-96-5
La	2	7439-91-0
Al	1	7429-90-5

RN 108916-22-9 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.8MnSr0.2O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.2	7440-24-6
Mn	1	7439-96-5
La	0.8	7439-91-0

RN 190664-72-3 HCAPLUS
CN Aluminum lanthanum manganese oxide (Al0.94La2Mn0.06O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Mn	0.06	7439-96-5
La	2	7439-91-0
Al	0.94	7429-90-5

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST fuel cell **cathode** elec microstructural characterization; lanthanum strontium iron aluminum oxide **cathode**; manganese lanthanum strontium aluminum oxide **cathode**
IT Electric resistance
Fuel cell **cathodes**
Microstructure
X-ray spectra
(elec. and microstructural characterization of (La0.8Sr0.2)(Fe1-xAlx)O3 and (La0.8Sr0.2)(Mn1-xAlx)O3 as possible SOFC **cathode** materials)
IT 12022-43-4, Iron lanthanum oxide FeLaO3 12031-12-8, Lanthanum manganese oxide LaMnO3 **84615-81-6**, Aluminum lanthanum manganese oxide (AlLa2MnO6) **108916-22-9**, Lanthanum manganese strontium oxide La0.8MnSr0.2O3 109546-91-0, Iron lanthanum strontium oxide FeLa0.8Sr0.2O3 178493-65-7, Aluminum iron lanthanum oxide Al0.5Fe0.5LaO3 190664-64-3, Aluminum iron lanthanum strontium oxide (Al0.3Fe0.7La0.8Sr0.2O3) 190664-65-4, Aluminum iron lanthanum strontium oxide (Al0.5Fe0.5La0.8Sr0.2O3) 190664-66-5, Aluminum iron lanthanum strontium oxide (Al0.94Fe0.06La0.8Sr0.2O3) 190664-67-6 190664-68-7 190664-69-8 190664-70-1, Aluminum iron lanthanum oxide (Al0.35Fe0.65LaO3) 190664-71-2, Aluminum iron lanthanum oxide (Al0.94Fe0.06LaO3) **190664-72-3**, Aluminum lanthanum manganese oxide (Al0.94La2Mn0.06O3)
(elec. and microstructural characterization of (La0.8Sr0.2)(Fe1-xAlx)O3 and (La0.8Sr0.2)(Mn1-xAlx)O3 as possible SOFC **cathode** materials)
IT 64417-98-7, Yttrium zirconium oxide
(**electrolyte**; elec. and microstructural characterization

of (La0.8Sr0.2)(Fe1-xAlx)O3 and (La0.8Sr0.2)(Mn1-xAlx)O3 as possible SOFC **cathode** materials)
REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 40 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1997:59929 HCAPLUS Full-text
DOCUMENT NUMBER: 126:133468
TITLE: Characteristics of Pr1-xMxMnO3(M=Ca, Sr) as a **cathode** material of solid oxide fuel cell
AUTHOR(S): Rim, Hyung-Ryul; Jeong, Soon-Ki; Lee, Ju-Seong
CORPORATE SOURCE: Dept. Industrial Chemistry, Hanyang University, Seoul, 133-791, S. Korea
SOURCE: Kongop Hwahak (**1996**), 7(6), 1125-1131
CODEN: KOHWE9; ISSN: 1225-0112
PUBLISHER: Korean Society of Industrial and Engineering Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: Korean
ED Entered STN: 27 Jan 1997
AB Ca or Sr-doped PrMnO3 were prepared for **cathode** material of solid oxide fuel cell. The characteristics such as the elec. conductivity and the **cathodic** overpotential were investigated as to **doping** contents. Also the reactivity with yttria stabilized zirconia of **electrolyte**, and the thermal expansion coefficient were studied. The prepared perovskite powder had the mean particle size of 2-5 μm, and the particle size and the surface area was out of relation to the **doping** content. When Ca **doping** amount of **electrode** material was 30 mol%, the elec. conductivity was the highest value of 266 S.cm-1 at 1000°, and also the polarization characteristics showed the best property. The reactivity between YSZ and Ca-doped PrMnO3 at 1200° for 100 h was lower than that between YSZ and Sr-doped PrMnO3. The thermal expansion coefficient of Pr0.7Ca0.3MnO3 was 1.19+10-5K-1 in the temperature range of 300-1000°, and this value was similar to that of YSZ, 1.15+10-5K-1.
IT **112510-20-0**, Manganese praseodymium strontium oxide (MnPr0.7Sr0.3O3) **144698-18-0**, Manganese praseodymium strontium oxide (MnPr0.9Sr0.1O3) **144698-21-5**, Manganese praseodymium strontium oxide (MnPr0.5Sr0.5O3) **186338-08-9**, Manganese praseodymium strontium oxide (MnPr0.3Sr0.7O3)
(characteristics of Ca or Sr-doped PrMnO3 as a **cathode** material of solid oxide fuel cell)
RN 112510-20-0 HCAPLUS
CN Manganese praseodymium strontium oxide (MnPr0.7Sr0.3O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.3	7440-24-6
Pr	0.7	7440-10-0
Mn	1	7439-96-5

RN 144698-18-0 HCAPLUS
CN Manganese praseodymium strontium oxide (MnPr0.9Sr0.1O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	3	17778-80-2
Sr	0.1	7440-24-6
Pr	0.9	7440-10-0
Mn	1	7439-96-5

RN 144698-21-5 HCAPLUS
CN Manganese praseodymium strontium oxide (MnPr0.5Sr0.5O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.5	7440-24-6
Pr	0.5	7440-10-0
Mn	1	7439-96-5

RN 186338-08-9 HCAPLUS
CN Manganese praseodymium strontium oxide (MnPr0.3Sr0.7O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.7	7440-24-6
Pr	0.3	7440-10-0
Mn	1	7439-96-5

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST **cathode** material solid oxide fuel cell; calcium praseodymium manganese oxide fuel cell; strontium praseodymium manganese oxide fuel cell
IT **Cathodic** polarization
Electric conductivity
Fuel cell **cathodes**
Particle size
Thermal expansion
(characteristics of Ca or Sr-doped PrMnO3 as a **cathode** material of solid oxide fuel cell)
IT 1314-23-4, Zirconia, uses
(Y2O3-stabilized, **electrolyte**; characteristics of Ca or Sr-doped PrMnO3 as a **cathode** material of solid oxide fuel cell)
IT 1314-36-9, Yttria, uses
(ZrO2 stabilized with, **electrolyte**; characteristics of Ca or Sr-doped PrMnO3 as a **cathode** material of solid oxide fuel cell)
IT **112510-20-0**, Manganese praseodymium strontium oxide (MnPr0.7Sr0.3O3) **144698-18-0**, Manganese praseodymium strontium oxide (MnPr0.9Sr0.1O3) **144698-21-5**, Manganese praseodymium strontium oxide (MnPr0.5Sr0.5O3) 171525-81-8, Calcium manganese praseodymium oxide (Ca0.3MnPr0.7O3) 171610-86-9, Calcium manganese praseodymium oxide (Ca0.1MnPr0.9O3) 173260-65-6, Calcium manganese praseodymium oxide (Ca0.5MnPr0.5O3) 178861-68-2, Calcium manganese praseodymium oxide (Ca0.7MnPr0.3O3) **186338-08-9**, Manganese praseodymium strontium oxide (MnPr0.3Sr0.7O3)
(characteristics of Ca or Sr-doped PrMnO3 as a **cathode** material of solid oxide fuel cell)

IT 64417-98-7, Yttrium zirconium oxide
(**electrolyte**; characteristics of Ca or Sr-doped PrMnO3 as a **cathode** material of solid oxide fuel cell)

L31 ANSWER 41 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1996:691572 HCAPLUS Full-text
DOCUMENT NUMBER: 126:68031
TITLE: Electric conductivity of La1-xSrxFe1-yMnyO3 materials
AUTHOR(S): Gordes, P.; Christiansen, N.; Poulsen, F. W.; Bouakaz, L.; Thomsen, K.
CORPORATE SOURCE: Research and Development Laboratories, Lyngby, DK-2800, Den.
SOURCE: High Temperature Electrochemistry: Ceramics and Metals, Proceedings of the Risoe International Symposium on Materials Science, 17th, Roskilde, Den., Sept. 2-6, 1996 (**1996**), 247-252. Editor(s): Poulsen, F. W. Risoe National Laboratory: Roskilde, Den. CODEN: 63PAA2
DOCUMENT TYPE: Conference
LANGUAGE: English
ED Entered STN: 23 Nov 1996
AB (La1-xSrx)sFe1-yMnyO3 perovskite compds. with s 0.9-1.0, x 0-≤ 0.4 and y 0.2-0.8 were synthesized by drip pyrolysis. The four-point dc method was used to measure the electronic conductivity as a function of temperature, Sr **doping**, Fe/**Mn** and (La+Sr)/(Fe+Mn) ratios. High electronic conductivities of ≤126 S/cm at 1000° in air were obtained for x = 0.30 and y = 0.80. The produced perovskite powders are suitable for SOFC cathode materials.
IT **185147-84-6**, Iron lanthanum manganese oxide (Fe0.2La0.95Mn0.8O3)
(elec. conductivity of La1-xSrxFe1-yMnyO3 materials)
RN 185147-84-6 HCAPLUS
CN Iron lanthanum manganese oxide (Fe0.2La0.95Mn0.8O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Mn	0.8	7439-96-5
La	0.95	7439-91-0
Fe	0.2	7439-89-6

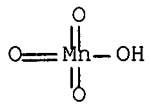
CC 76-1 (Electric Phenomena)
Section cross-reference(s): **52**
IT 110641-92-4, Iron lanthanum manganese strontium oxide (Fe0.2La0.7Mn0.8Sr0.3O3 120949-38-4, Iron lanthanum manganese strontium oxide (Fe0.5La0.7Mn0.5Sr0.3O3 158307-84-7, Iron lanthanum manganese strontium oxide (Fe0.8La0.6Mn0.2Sr0.4O3 184045-34-9, Iron lanthanum manganese strontium oxide (Fe0.8La0.54Mn0.2Sr0.36O3 184839-68-7, Iron lanthanum manganese strontium oxide (Fe0.2La0.86Mn0.8Sr0.1O3) 185147-80-2, Iron lanthanum manganese strontium oxide (Fe0.7La0.7Mn0.3Sr0.3O3) 185147-81-3, Iron lanthanum manganese strontium oxide (Fe0.7La0.76Mn0.3Sr0.19O3) 185147-82-4, Iron lanthanum manganese strontium oxide (Fe0.5La0.72Mn0.5Sr0.18O3) 185147-83-5, Iron lanthanum manganese strontium oxide (Fe0.2La0.76Mn0.8Sr0.19O3) **185147-84-6**, Iron lanthanum manganese oxide (Fe0.2La0.95Mn0.8O3) 185147-85-7, Iron lanthanum manganese strontium oxide (Fe0.7La0.86Mn0.3Sr0.1O3) 185147-86-8,

Iron lanthanum manganese strontium oxide (Fe0.7La0.66Mn0.3Sr0.28O3) 185147-87-9, Iron lanthanum manganese strontium oxide (Fe0.2La0.66Mn0.8Sr0.28O3) 185147-88-0, Iron lanthanum manganese strontium oxide (Fe0.7La0.63Mn0.3Sr0.27O3) 185148-62-3, Iron lanthanum manganese strontium oxide (Fe0.8La0.72Mn0.2Sr0.18O3)
(elec. conductivity of La1-xSrxFe1-yMnyO3 materials)

L31 ANSWER 42 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1996:673734 HCAPLUS Full-text
DOCUMENT NUMBER: 125:334203
TITLE: Manufacture of lithium **doped**-α-**manganese** dioxide for lithium battery cathodes
INVENTOR(S): Ooi, Kenta; Hyo, Ki; Kano, Hirobumi; Myai, Yoshitaka; Nakanaga, Takefumi; Tani, Masato
PATENT ASSIGNEE(S): Kogyo Gijutsuin, Japan; Otsuka Kagaku Kk
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08239222	A	19960917	JP 1996-83262 <--	19960311
JP 2835436	B2	19981214		
PRIORITY APPLN. INFO.:			JP 1996-83262 <--	19960311

ED Entered STN: 14 Nov 1996
AB The title compds. are manufactured by ion exchanging proton of α-MnO2, which is manufactured by treating Mn inorg. salts with LiMnO4, NaMnO4, and/or Mg(MnO4)2 in addition of ≥4 mol concentration of inorg. acids, with Li.
IT **10377-62-5**, Magnesium permanganate
(manufacture of Li-doped α-MnO2 for Li battery cathodes)
RN 10377-62-5 HCAPLUS
CN Permanganic acid (HMnO4), magnesium salt (8CI, 9CI) (CA INDEX NAME)



●1/2 Mg

IC ICM C01G045-00
ICS H01M004-50
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 49
ST **manganese** oxide lithium **doping** battery cathode
IT 10101-50-5, Sodium permanganate **10377-62-5**, Magnesium permanganate 10377-66-9, Manganese nitrate 13453-79-7, Lithium permanganate

(manufacture of Li-doped α-MnO2 for Li battery cathodes)

L31 ANSWER 43 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1996:184779 HCAPLUS Full-text
DOCUMENT NUMBER: 124:237161
TITLE: **Electrolyte** preparation and characteristics of La1-xSrxMnO3 for solid oxide fuel cell
AUTHOR(S): Rim, Hyung-Ryul; Lee, Ju-Seong
CORPORATE SOURCE: Dept. Industrial Chem., Hanyang Univ., Seoul, 133-791, S. Korea
SOURCE: Kongop Hwahak (**1996**), 7(1), 9-17
CODEN: KOHWE9; ISSN: 1225-0112
PUBLISHER: Korean Society of Industrial and Engineering Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: Korean
ED Entered STN: 30 Mar 1996
AB Solid oxide **electrolytes** of 8 mol% YSZ (Y2O3 stabilized zirconia) were prepared at various sintering conditions and their ionic conductivities were measured. The highest ionic conductivity of 10-1 S.cm-1 was obtained when the sintering temperature was 1400° and the sintering time was 10 h. Also the **cathode** material, La1-xSrxMnO3, was prepared by solid state reaction method and the overpotential, elec. conductivity, and charge transfer resistance between **cathode** material and YSZ **electrolyte** were studied. It was found that the optimum **doping** content of Sr for La was 50 mol%.
IT **12163-45-0**, Manganese strontium oxide MnSrO3
64296-91-9, Lanthanum manganese strontium oxide La0.5MnSr0.5O3
106390-66-3, Lanthanum manganese strontium oxide La0.7MnSr0.3O3 **110781-51-6**, Lanthanum manganese strontium oxide La0.9MnSr0.1O3 **112593-63-2**, Lanthanum manganese strontium oxide La0.1MnSr0.9O3 **112593-64-3**, Lanthanum manganese strontium oxide La0.3MnSr0.7O3
(**cathodes**; **electrolyte** preparation and characteristics of La1-xSrxMnO3 for solid oxide fuel cell)
RN 12163-45-0 HCAPLUS
CN Manganese strontium oxide (MnSrO3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	1	7440-24-6
Mn	1	7439-96-5

RN 64296-91-9 HCAPLUS
CN Lanthanum manganese strontium oxide (LaMn2SrO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Sr	1	7440-24-6
Mn	2	7439-96-5
La	1	7439-91-0

RN 106390-66-3 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.7MnSr0.3O3) (CA INDEX NAME)

Component	Ratio	Component

		Registry Number
O	3	17778-80-2
Sr	0.3	7440-24-6
Mn	1	7439-96-5
La	0.7	7439-91-0

RN 110781-51-6 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.9MnSr0.1O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.1	7440-24-6
Mn	1	7439-96-5
La	0.9	7439-91-0

RN 112593-63-2 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.1MnSr0.9O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.9	7440-24-6
Mn	1	7439-96-5
La	0.1	7439-91-0

RN 112593-64-3 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.3MnSr0.7O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.7	7440-24-6
Mn	1	7439-96-5
La	0.3	7439-91-0

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76
ST fuel cell yttria stabilized zirconia **electrolyte**; lanthanum strontium manganite **cathode** fuel cell
IT Fuel-cell **electrolytes**
(Y2O3 stabilized zirconia; **electrolyte** preparation and characteristics of La1-xSrxMnO3 for solid oxide fuel cell)
IT Electric conductivity and conduction
(**electrolyte** preparation and characteristics of La1-xSrxMnO3 for solid oxide fuel cell)
IT 12031-12-8, Lanthanum manganese oxide LaMnO3 **12163-45-0**, Manganese strontium oxide MnSrO3 **64296-91-9**, Lanthanum manganese strontium oxide La0.5MnSr0.5O3 **106390-66-3**, Lanthanum manganese strontium oxide La0.7MnSr0.3O3 **110781-51-6**, Lanthanum manganese strontium oxide La0.9MnSr0.1O3 **112593-63-2**, Lanthanum manganese strontium oxide La0.1MnSr0.9O3 **112593-64-3**, Lanthanum manganese strontium oxide La0.3MnSr0.7O3
(**cathodes**; **electrolyte** preparation and

characteristics of La1-xSrxMnO3 for solid oxide fuel cell)
IT 114168-16-0, Yttrium zirconium oxide (Y0.16Zr0.92O2.08)
(**electrolyte; electrolyte** preparation and characteristics of La1-xSrxMnO3 for solid oxide fuel cell)
IT 1314-23-4, Zirconia, uses
(yttria-stabilized, **electrolyte; electrolyte** preparation and characteristics of La1-xSrxMnO3 for solid oxide fuel cell)
IT 1314-36-9, Yttria, uses
(zirconia stabilized with, **electrolyte; electrolyte** preparation and characteristics of La1-xSrxMnO3 for solid oxide fuel cell)

L31 ANSWER 44 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1996:121119 HCAPLUS Full-text
DOCUMENT NUMBER: 124:150873
TITLE: Weakly **doped manganese** dioxide for use in positive **electrodes**, its manufacture, and lithium ion secondary **batteries** comprising the positive **electrodes**
INVENTOR(S): Delmas, Claude; Capitaine, Francois
PATENT ASSIGNEE(S): Bollore Technologies, Fr.
SOURCE: Fr. Demande, 21 pp.
CODEN: FRXXBL
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2718728	A1	19951020	FR 1994-4453 <--	19940414
FR 2718728	B1	19960712		
PRIORITY APPLN. INFO.:			FR 1994-4453 <--	19940414

ED Entered STN: 28 Feb 1996
AB The MnO2 is doped with an atom A capable of improving the kinetics of diffusion and the reversibility of the insertion of Li, in A/Mn ratio ≤0.12 (excluding V-doped MnO2) and having discharge capacity <60 A.h/kg at final discharge voltage 1.8 V. The doped MnO2 is obtained by mixing a solution of a Mn compound under oxidizing conditions and in stoichiometric ratio with an A-containing compound, evaporating the liquid, and heat-treating the residue in O at 25-500°. The A-containing compound is selected from ≥1 of V, W, Mo, and Nb compds, e.g., V2O5, NH4VO3, and MoO3, and the Mn compound is Mn(NO3)2.
IT **173721-29-4P**, Manganese vanadium oxide (Mn0.95V0.05O1.9-2.2)
173721-30-7P, Manganese vanadium oxide (Mn0.99V0.01O1.9-2.2)
(weakly **doped manganese** dioxide for use as pos. **electrodes**, its manufacture, and lithium ion secondary **batteries** comprising the pos. **electrodes**)
RN 173721-29-4 HCAPLUS
CN Manganese vanadium oxide (Mn0.95V0.05O1.9-2.2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2.2	17778-80-2
V	0.05	7440-62-2
Mn	0.95	7439-96-5

RN 173721-30-7 HCAPLUS
CN Manganese vanadium oxide (Mn0.99V0.01O1.9-2.2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.9 - 2.2	17778-80-2
V	0.01	7440-62-2
Mn	0.99	7439-96-5

IC ICM C01G045-02
ICS H01M004-50; H01M004-26
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 49
ST lithium ion secondary **battery** pos **electrode**; **dopant manganese** dioxide pos **electrode**; vanadium pentoxide **dopant manganese** nitrate; ammonium vanadate **dopant manganese** nitrate; molybdenum trioxide **dopant manganese** nitrate; tungsten **dopant manganese** nitrate
IT Polymers, uses
(solid **electrolytes**; weakly **doped manganese** dioxide for use as pos. **electrodes**, its manufacture, and lithium ion secondary **batteries** comprising the pos. **electrodes**)
IT **Batteries**, secondary
(weakly **doped manganese** dioxide for use as pos. **electrodes**, its manufacture, and lithium ion secondary **batteries** comprising the pos. **electrodes**)
IT **Cathodes**
(**battery**, weakly **doped manganese** dioxide for use as pos. **electrodes**, its manufacture, and lithium ion secondary **batteries** comprising the pos. **electrodes**)
IT **Electrolytes**
(solid, polymers; weakly **doped manganese** dioxide for use as pos. **electrodes**, its manufacture, and lithium ion secondary **batteries** comprising the pos. **electrodes**)
IT 7440-33-7D, Tungsten, compds.
(**dopants**; weakly **doped manganese** dioxide for use as pos. **electrodes**, its manufacture, and lithium ion secondary **batteries** comprising the pos. **electrodes**)
IT 1313-13-9P, Manganese dioxide, preparation
(weakly **doped manganese** dioxide for use as pos. **electrodes**, its manufacture, and lithium ion secondary **batteries** comprising the pos. **electrodes**)
IT **173721-29-4P**, Manganese vanadium oxide (Mn0.95V0.05O1.9-2.2)
173721-30-7P, Manganese vanadium oxide (Mn0.99V0.01O1.9-2.2)
(weakly **doped manganese** dioxide for use as pos. **electrodes**, its manufacture, and lithium ion secondary **batteries** comprising the pos. **electrodes**)
IT 1314-62-1, Vanadium pentoxide, uses
(weakly **doped manganese** dioxide for use as pos. **electrodes**, its manufacture, and lithium ion secondary **batteries** comprising the pos. **electrodes**)
IT 1313-27-5, Molybdenum trioxide, processes 7803-55-6, Ammonium

vanadate 10377-66-9, **Manganese** nitrate
(weakly **doped manganese** dioxide for use as pos. **electrodes**, its manufacture, and lithium ion secondary **batteries** comprising the pos. **electrodes**)

L31 ANSWER 45 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1995:950102 HCAPLUS Full-text
DOCUMENT NUMBER: 124:17438
TITLE: Oxygen ion transport and **electrode** properties of La(Sr)MnO3
AUTHOR(S): Kharton, V. V.; Nikolaev, A. V.; Naumovich, E. N.; Vecher, A. A.
CORPORATE SOURCE: Institute of Physico-Chemical Problems, Belarus State University, 14 Leningradsky Str., 220080, Minsk, Belarus
SOURCE: Solid State Ionics (**1995**), 81(3,4), 201-9
CODEN: SSIOD3; ISSN: 0167-2738
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 29 Nov 1995
AB **Cathodic** polarization of LaxSryMnO3 (x = 0.3-0.6; y = 0.3-0.5) **electrodes**, doped by the sintering agents Bi2O3, PbO, Sb2O3, CuO, or Bi2CuO4, on a zirconia solid **electrolyte** was studied. The electrochem. activity of La0.6Sr0.4MnO3 **electrodes** with sintering agent°Bi2CuO4 is the highest among the solid solns. based on La(Sr)MnO3. The pos. effect of the bismuth cuprate addition is ascribed to the sufficiently high mixed ionic and electronic conductivity of Bi2CuO4. The obtained results were characterized by the absence of a direct correlation between the electrochem. parameters of the **electrode** layers and oxygen permeability of the manganite ceramics. Oxygen transport through the manganite ceramics is limited by the sorption on ceramics surface.
IT **108916-21-8**, Lanthanum manganese strontium oxide (La0.6MnSr0.4O3)
(electrochem. activity of La0.6Sr0.4MnO3 **electrodes** doped by sintering with various oxides)
RN 108916-21-8 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.6MnSr0.4O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.4	7440-24-6
Mn	1	7439-96-5
La	0.6	7439-91-0

IT **64296-91-9**, Lanthanum manganese strontium oxide (La0.5MnSr0.5O3) **166188-02-9**, Lanthanum manganese strontium oxide (La0.5MnSr0.4O3) **166188-03-0**, Lanthanum manganese strontium oxide (La0.5MnSr0.3O3) **166188-04-1**, Lanthanum manganese strontium oxide (La0.3MnSr0.5O3)
(**electrode** properties of)
RN 64296-91-9 HCAPLUS
CN Lanthanum manganese strontium oxide (LaMn2SrO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	6	17778-80-2
Sr	1	7440-24-6
Mn	2	7439-96-5
La	1	7439-91-0

RN 166188-02-9 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.5MnSr0.4O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.4	7440-24-6
Mn	1	7439-96-5
La	0.5	7439-91-0

RN 166188-03-0 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.5MnSr0.3O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.3	7440-24-6
Mn	1	7439-96-5
La	0.5	7439-91-0

RN 166188-04-1 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.3MnSr0.5O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.5	7440-24-6
Mn	1	7439-96-5
La	0.3	7439-91-0

CC 72-2 (**Electrochemistry**)
Section cross-reference(s): 66, 75, 76
ST lanthanum strontium oxide **electrode** oxygen transport; bismuth oxide sintering lanthanum strontium oxide; lead oxide sintering lanthanum strontium oxide; antimony oxide sintering lanthanum strontium oxide; copper oxide sintering lanthanum strontium oxide; cuprate bismuth sintering lanthanum strontium oxide
IT **Electrodes**
(lanthanum strontium **manganese** oxide **electrodes** **doped** by sintering)
IT Electric conductivity and conduction
(of bismuth cuprate and **doping** of lanthanum strontium manganese oxide by sintering with bismuth cuprate)
IT Permeability and Permeation
(of oxygen by lanthanum strontium manganese oxide **electrodes**)
IT **Electrolytic** polarization
(**cathodic**, of lanthanum strontium **manganese** oxide **electrodes** **doped** by sintering)

IT 1304-76-3, Bismuth oxide (Bi2O3), properties 1309-64-4, Antimony oxide (Sb2O3), properties 1317-36-8, Lead oxide (PbO), properties 1317-38-0, Cupric oxide, properties 39368-32-6, Bismuth copper oxide (Bi2CuO4)
(electrochem. activity of La0.6Sr0.4MnO3 **electrodes** doped by sintering with)
IT **108916-21-8**, Lanthanum manganese strontium oxide (La0.6MnSr0.4O3)
(electrochem. activity of La0.6Sr0.4MnO3 **electrodes** doped by sintering with various oxides)
IT **64296-91-9**, Lanthanum manganese strontium oxide (La0.5MnSr0.5O3) **166188-02-9**, Lanthanum manganese strontium oxide (La0.5MnSr0.4O3) **166188-03-0**, Lanthanum manganese strontium oxide (La0.5MnSr0.3O3) **166188-04-1**, Lanthanum manganese strontium oxide (La0.3MnSr0.5O3)
(**electrode** properties of)
IT 16833-27-5, Oxide
(oxygen ion transport and **electrode** properties of lanthanum strontium manganese oxide)
IT 7782-44-7, Oxygen, properties
(permeation by lanthanum strontium manganese oxide **electrodes**)

L31 ANSWER 46 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1995:570571 HCAPLUS Full-text
DOCUMENT NUMBER: 122:318609
TITLE: Doped PrMnO3 perovskite oxide as a new **cathode** of solid oxide fuel cells for low temperature operation
AUTHOR(S): Ishihara, Tatsumi; Kudo, Takanari; Matsuda, Hideaki; Takita, Yusaku
CORPORATE SOURCE: Dep. Appl. Chem., Fac. Eng., Oita Univ., Oita, 870-11, Japan
SOURCE: Journal of the Electrochemical Society (**1995**), 142(5), 1519-24
CODEN: JESOAN; ISSN: 0013-4651
PUBLISHER: Electrochemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 24 May 1995
AB **Cathodic** overpotentials of Ln0.6Sr0.4MnO3 (Ln = La, Pr, Nd, Sm, Gd, Yb, and Y) were studied for a new **cathode** of solid oxide fuel cell (SOFC). **Cathodic** overpotentials as well as the elec. conductivity strongly depended on the rare earth cations used for the A sites of perovskite oxide. Strontium doped PrMnO3 exhibited the highest elec. conductivity among the examined perovskite oxide containing Mn for B sites. Moreover, overpotentials of Sr-doped PrMnO3 **cathode** maintained low values in spite of decreasing the operating temperature Consequently, almost the same power d. of SOFC with La0.6Sr0.4MnO3 **cathode** can be obtained at about 100 K lower operating temperature by using Sr-doped PrMnO3 as the **cathode**. The overpotentials and elec. conductivity decreased and increased with increasing the amount of Sr **dopant** in PrMnO3, resp., and the lowest overpotential was attained at x = 0.4 in Pr1-xSrxMnO3. Comparing with La0.6Sr0.4MnO3 oxide, the reactivity of Pr0.6Sr0.4MnO3 with Y2O3-stabilized ZrO2 is much less than that of La0.6Sr0.4MnO3 and furthermore, the matching of thermal expansion of Pr0.6Sr0.4MnO3 with Y2O3-ZrO2 was satisfactorily high. Therefore, perovskite oxide of Pr0.6Sr0.4MnO3 has a great possibility of the **cathode** materials for decreasing the operating temperature of solid oxide fuel cells.
IT **108916-21-8**, Lanthanum manganese strontium oxide La0.6MnSr0.4o3 **129208-48-6**, Barium manganese praseodymium

oxide Ba0.4MnPr0.6o3 **144698-20-4**, Manganese praseodymium strontium oxide MnPr0.6Sr0.4o3 **152825-24-6**, Manganese neodymium strontium oxide MnNd0.6Sr0.4o3 **156248-17-8**, Manganese samarium strontium oxide MnSm0.6Sr0.4o3 **156248-18-9**, Gadolinium Manganese strontium oxide Gd0.6MnSr0.4o3 **156248-19-0**, Manganese strontium ytterbium oxide MnSr0.4Yb0.6o3 **156248-20-3**, Manganese strontium yttrium oxide MnSr0.4Y0.6o3
(doped PrMnO3 perovskite oxide as a new **cathode** of solid oxide fuel cells for low temperature operation)

RN 108916-21-8 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.6MnSr0.4O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.4	7440-24-6
Mn	1	7439-96-5
La	0.6	7439-91-0

RN 129208-48-6 HCAPLUS
CN Barium manganese praseodymium oxide (Ba0.4MnPr0.6O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ba	0.4	7440-39-3
Pr	0.6	7440-10-0
Mn	1	7439-96-5

RN 144698-20-4 HCAPLUS
CN Manganese praseodymium strontium oxide (MnPr0.6Sr0.4O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.4	7440-24-6
Pr	0.6	7440-10-0
Mn	1	7439-96-5

RN 152825-24-6 HCAPLUS
CN Manganese neodymium strontium oxide (MnNd0.6Sr0.4O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.4	7440-24-6
Nd	0.6	7440-00-8
Mn	1	7439-96-5

RN 156248-17-8 HCAPLUS
CN Manganese samarium strontium oxide (MnSm0.6Sr0.4O3) (CA INDEX NAME)

Component	Ratio	Component

		Registry Number
O	3	17778-80-2
Sr	0.4	7440-24-6
Sm	0.6	7440-19-9
Mn	1	7439-96-5

RN 156248-18-9 HCAPLUS
CN Gadolinium manganese strontium oxide (Gd0.6MnSr0.4O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Gd	0.6	7440-54-2
Sr	0.4	7440-24-6
Mn	1	7439-96-5

RN 156248-19-0 HCAPLUS
CN Manganese strontium ytterbium oxide (MnSr0.4Yb0.6O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Yb	0.6	7440-64-4
Sr	0.4	7440-24-6
Mn	1	7439-96-5

RN 156248-20-3 HCAPLUS
CN Manganese strontium yttrium oxide (MnSr0.4Y0.6O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Y	0.6	7440-65-5
Sr	0.4	7440-24-6
Mn	1	7439-96-5

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): **72**
ST fuel cell **cathode** perovskite oxide
IT Electric conductivity and conduction
(doped PrMnO3 perovskite oxide as a new **cathode** of solid oxide fuel cells for low temperature operation)
IT **Cathodes**
(fuel-cell, doped PrMnO3 perovskite oxide as a new **cathode** of solid oxide fuel cells for low temperature operation)
IT **108916-21-8**, Lanthanum manganese strontium oxide La0.6MnSr0.4o3 125862-02-4, Calcium manganese praseodymium oxide Ca0.4MnPr0.6o3 **129208-48-6**, Barium manganese praseodymium oxide Ba0.4MnPr0.6o3 **144698-20-4**, Manganese praseodymium strontium oxide MnPr0.6Sr0.4o3 **152825-24-6**, Manganese neodymium strontium oxide MnNd0.6Sr0.4o3 **156248-17-8**, Manganese samarium strontium oxide MnSm0.6Sr0.4o3 **156248-18-9**, Gadolinium Manganese strontium oxide Gd0.6MnSr0.4o3

156248-19-0, Manganese strontium ytterbium oxide MnSr0.4Yb0.6o3 **156248-20-3**, Manganese strontium yttrium oxide MnSr0.4Y0.6o3
(doped PrMnO3 perovskite oxide as a new **cathode** of solid oxide fuel cells for low temperature operation)
IT 64417-98-7, Yttrium zirconium oxide 114168-16-0, Tz 8y
(**electrolyte**; doped PrMnO3 perovskite oxide as a new **cathode** of solid oxide fuel cells for low temperature operation)

L31 ANSWER 47 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1995:551907 HCAPLUS Full-text
DOCUMENT NUMBER: 123:68535
TITLE: The improvements of the solid oxide steam electrolysis cell components
AUTHOR(S): Koshiro, Ikumasa; Miyamoto, Hitoshi; Sumi, Masao; Mori, Kazutaka
CORPORATE SOURCE: Takasago R&D Center, Mitsubishi Heavy Industries Ltd., Takasago, 676, Japan
SOURCE: Hydrogen Energy Prog. X, Proc. World Hydrogen Energy Conf., 10th (**1994**), Volume 1, 695-701. Editor(s): Block, David L.; Veziroglu, T. Nejat. Fla. Sol. Energy Cent.: Cape Canaveral, Fla.
CODEN: 61FXA7
DOCUMENT TYPE: Conference
LANGUAGE: English
ED Entered STN: 17 May 1995
AB The mechanism of the degradation of the Solid Oxide Steam Electrolysis Cell (SOE) components and their countermeasures are discussed. Two major degradation phenomena were faced in SOE. One was an intergranular degradation of yttria-stabilized zirconia (YSZ). The other was a peeling-off phenomenon of the LSM (LaSrMnO3) **anode** from YSZ during electrolysis. The YSZ degradation was caused from a reduction of SiO2, which was 1 of the minor impurities contained in YSZ. Because this degradation occurred at a **cathodic** potential of less than -1.4V (vs. air), the development of a higher performance **cathode** was needed. The authors overcame this problem by making a mixed conductive thin film layer over the **cathode** side. The YSZ surface was doped with Ce-based materials. The increase of the **anode** overpotential was observed soon after starting SOE operation. Finally, the **anode** peeled off at the **electrode/electrolyte** boundary. This phenomenon was caused from La2Zr2O7 generation at the LSM/YSZ boundary during electrolysis. By increasing the amount of Sr **doping** in LSM, the **anode** detachment from YSZ could be prevented.
IT **141067-82-5**, Lanthanum manganese strontium oxide (LaMnSrO3)
(peeling off of LSM **anode** from yttria-stabilized zirconia during electrolysis)
RN 141067-82-5 HCAPLUS
CN Lanthanum manganese strontium oxide (LaMnSrO3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	1	7440-24-6
Mn	1	7439-96-5
La	1	7439-91-0

CC 72-9 (**Electrochemistry**)
IT **Electrolytic** cells
(improvements of solid oxide steam electrolysis cell components)
IT 1314-36-9, Yttrium sesquioxide, uses

(peeling off of LSM **anode** from yttria-stabilized zirconia during electrolysis)
IT **141067-82-5**, Lanthanum manganese strontium oxide (LaMnSrO3)
(peeling off of LSM **anode** from yttria-stabilized zirconia during electrolysis)
IT 1314-23-4, Zirconia, uses
(yttria-stabilized; peeling off of LSM **anode** from yttria-stabilized zirconia during electrolysis)

L31 ANSWER 48 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1995:546435 HCAPLUS Full-text
DOCUMENT NUMBER: 123:42991
TITLE: Effect of Bi-**doping** on the electrochemical behavior of layered MnO2 as lithium intercalation compound
AUTHOR(S): Bach, Stephane; Pereira-Ramos, Jean-Pierre; Cachet, Christine; Bode, Mohammad; Yu, Liang Tse
CORPORATE SOURCE: Lab. Electrochimie, Catalyse Synthese Organique, Thiais, 94320, Fr.
SOURCE: Electrochimica Acta (**1995**), 40(6), 785-9
CODEN: ELCAAV; ISSN: 0013-4686
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 12 May 1995
AB Electrochem. lithium insertion into layered MnO2 forms containing bismuth is reported. A low temperature technique based on a slow copptn. in acidic medium in the presence of KMnO4 and a bismuth(III) salt is applied, leading to amorphous MnO2 forms. A chronopotentiometric study showed that the lithium insertion process occurs in one step located at 3 V and is reversible in the whole range $0 < x < 0.8$. The influence of the bismuth and water content on the galvanostatic cycling curves was studied. These results are discussed and compared with the electrochem. behavior of the sol-gel birnessite MnO1.84.nH2O. The best results were obtained for the lowest Bi content with a high specific capacity of 120 Ah kg-1 recovered after the 50th cycle at a discharge-charge rate of C/8, while the lower the water content, the poorer the cycling behavior. From the better reversible behavior found for the Bi-doped MnO2 structure in comparison with the sol-gel birnessite compound, one can suggest that a pillaring effect due to interlayer Bi3+ ions minimizes the magnitude of structural changes.
IT **164144-55-2 164144-57-4**
(electrochem. reduction in propylene carbonate containing lithium perchlorate)
RN 164144-55-2 HCAPLUS
CN Bismuth manganese oxide (Bi0.15MnO2.16), hydrate (20:19) (9CI) (CA INDEX NAME)

CM 1

CRN 164144-54-1
CMF Bi . Mn . O
CCI TIS

CM 2

CRN 17778-80-2
CMF O

O

CM 3

CRN 7440-69-9
CMF Bi

Bi

CM 4

CRN 7439-96-5
CMF Mn

Mn

RN 164144-57-4 HCAPLUS
CN Bismuth manganese oxide (Bi0.27MnO2.34), hydrate (5:4) (9CI) (CA INDEX NAME)

CM 1

CRN 164144-56-3
CMF Bi . Mn . O
CCI TIS

CM 2

CRN 17778-80-2
CMF O

O

CM 3

CRN 7440-69-9
CMF Bi

Bi

CM 4

CRN 7439-96-5
CMF Mn

Mn

IT **164144-52-9**
(electrochem. reduction in propylene carbonate containing lithium perchlorate and crystal structure and thermal decomposition of)
RN 164144-52-9 HCAPLUS
CN Bismuth manganese oxide (Bi0.1MnO2.11), hydrate (25:24) (9CI) (CA INDEX NAME)

CM 1

CRN 163932-04-5
CMF Bi . Mn . O
CCI TIS

CM 2

CRN 17778-80-2
CMF O

O

CM 3

CRN 7440-69-9
CMF Bi

Bi

CM 4

CRN 7439-96-5
CMF Mn

Mn

IT **163932-04-5P**, Bismuth manganese oxide (Bi0.1MnO2.11)
164144-53-0P
(preparation by thermal decomposition and electrochem. cycling in propylene carbonate containing lithium perchlorate)
RN 163932-04-5 HCAPLUS
CN Bismuth manganese oxide (Bi0.1MnO2.11) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2.11	17778-80-2
Bi	0.1	7440-69-9
Mn	1	7439-96-5

RN 164144-53-0 HCAPLUS
CN Bismuth manganese oxide (Bi0.1MnO2.11), hydrate (9CI) (CA INDEX NAME)

CM 1

CRN 163932-04-5
CMF Bi . Mn . O
CCI TIS

CM 2

CRN 17778-80-2
CMF O

O

CM 3

CRN 7440-69-9
CMF Bi

Bi

CM 4

CRN 7439-96-5
CMF Mn

Mn

CC 72-2 (**Electrochemistry**)
Section cross-reference(s): 75, 78
ST lithium electrointercalation bismuth **doped manganese** oxide; intercalation electrochem lithium manganese oxide
IT Cathodes
(battery, bismuth-**doped manganese** oxide)
IT **164144-55-2 164144-57-4**
(electrochem. reduction in propylene carbonate containing lithium perchlorate)
IT **164144-52-9**
(electrochem. reduction in propylene carbonate containing lithium perchlorate and crystal structure and thermal decomposition of)
IT **163932-04-5P**, Bismuth manganese oxide (Bi0.1MnO2.11)
164144-53-0P
(preparation by thermal decomposition and electrochem. cycling in propylene carbonate containing lithium perchlorate)

L31 ANSWER 49 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1994:513258 HCAPLUS Full-text
DOCUMENT NUMBER: 121:113258
TITLE: Selection, fabrication and properties of **electrodes** used in high temperature solid oxide fuel cells
AUTHOR(S): Sammes, N. M.; Phillipps, M. B.
CORPORATE SOURCE: Cent. Technol., Univ. Waikato, Hamilton, 3105, N. Z.
SOURCE: Sci. Technol. Zirconia V, [Int. Conf.], 5th (**1993**), Meeting Date 1992, 742-51
CODEN: 59UVAJ
DOCUMENT TYPE: Conference
LANGUAGE: English
ED Entered STN: 03 Sep 1994
AB This paper describes the fuel-cell **electrode** fabrication and properties as a function of their chemical and phys. compatibility and conductivity A series of La1-xSrxMnO3 **cathodes** were synthesized using a fabrication technique which involved the formation of a polymer precursor. Excellent adherence of **electrodes** was found, even for relatively high **dopant** levels. A series of Ni/Y2O3-stabilized ZrO2 cermets were investigated as **anodes** as a function of their Ni loading and compatibility with the **electrolyte**. A single cell was fabricated using the above **electrodes** and Y2O3-doped fully stabilized ZrO2 as the **electrolyte**.
IT **64296-91-9P**, Lanthanum manganese strontium oxide (La0.5MnSr0.5O3) **106390-66-3P**, Lanthanum manganese strontium oxide (La0.7MnSr0.3O3) **108916-21-8P**, Lanthanum manganese strontium oxide (La0.6MnSr0.4O3) **108916-22-9P**, Lanthanum manganese strontium oxide (La0.8MnSr0.2O3) **110781-51-6P**, Lanthanum manganese strontium oxide (La0.9MnSr0.1O3)
(**cathodes**, manufacture and properties of, for solid-oxide fuel cells)
RN 64296-91-9 HCAPLUS
CN Lanthanum manganese strontium oxide (LaMn2SrO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	6	17778-80-2
Sr	1	7440-24-6
Mn	2	7439-96-5
La	1	7439-91-0

RN 106390-66-3 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.7MnSr0.3O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.3	7440-24-6
Mn	1	7439-96-5
La	0.7	7439-91-0

RN 108916-21-8 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.6MnSr0.4O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.4	7440-24-6
Mn	1	7439-96-5
La	0.6	7439-91-0

RN 108916-22-9 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.8MnSr0.2O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.2	7440-24-6
Mn	1	7439-96-5
La	0.8	7439-91-0

RN 110781-51-6 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.9MnSr0.1O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.1	7440-24-6
Mn	1	7439-96-5
La	0.9	7439-91-0

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST lanthanum strontium manganese oxide **cathode** manuf; nickel yttrium zirconium oxide **anode** manuf; solid oxide fuel cell manuf
IT **Cathodes**
(fuel-cell, lanthanum manganese strontium oxide, manufacture and properties of)
IT **Anodes**
(fuel-cell, nickel/yttrium zirconium oxide cermet, manufacture and properties of)

IT Fuel cells
(solid-state, with yttria-stabilized zirconia **electrolyte**, manufacture of)
IT 143107-06-6P
(**anodes**, manufacture and properties of, for solid-oxide fuel cells)
IT 1314-11-0P
(**cathodes**, fuel-cell, lanthanum manganese strontium oxide, manufacture and properties of)
IT 12031-12-8P, Lanthanum manganese oxide (LaMnO3) **64296-91-9P**, Lanthanum manganese strontium oxide (La0.5MnSr0.5O3) **106390-66-3P**, Lanthanum manganese strontium oxide (La0.7MnSr0.3O3) **108916-21-8P**, Lanthanum manganese strontium oxide (La0.6MnSr0.4O3) **108916-22-9P**, Lanthanum manganese strontium oxide (La0.8MnSr0.2O3) **110781-51-6P**, Lanthanum manganese strontium oxide (La0.9MnSr0.1O3)
(**cathodes**, manufacture and properties of, for solid-oxide fuel cells)
IT 114168-16-0P, Yttrium zirconium oxide (Y0.16Zr0.92O2.08)
(**electrolyte**, solid-oxide fuel cells with, manufacture of)
IT 1314-23-4P, Zirconia, uses
(yttria-stabilized, **electrolyte**, solid-oxide fuel cells with, manufacture of)
IT 1314-36-9P, Yttria, uses
(zirconia stabilized with, **electrolyte**, solid-oxide fuel cells with, manufacture of)

L31 ANSWER 50 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1994:327486 HCAPLUS Full-text
DOCUMENT NUMBER: 120:327486
TITLE: Oxygen pumping characteristics of oxide ion **electrolytes** at low temperatures
AUTHOR(S): Doshi, R.; Shen, Y.; Alcock, C. B.
CORPORATE SOURCE: Cent. Sensor Mater., Univ. Notre Dame, Notre Dame, IN, 46556, USA
SOURCE: Solid State Ionics (**1994**), 68(1-2), 133-7
CODEN: SSIOD3; ISSN: 0167-2738
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 25 Jun 1994
AB Electrochem. O pumping was used to study O transport characteristics of oxide ceramics for **electrolytes** and **electrodes** of fuel cells. The O transference number was measured as the volume change using a liquid column in a capillary. The **electrolyte** ceramics studied were 10 mol% Ca doped CeO2 and 20 mol% Sr doped Bi2O3. The **electrode** materials were Pt, Pd/Au and ceramic La0.7Sr0.3MnO3-δ, La0.5Sr0.5MnO3-δ, and La0.7Sr0.3FeO3-δ perovskites. The manganite perovskite **electrode** performance was comparable to Pt at 700° in both **electrolytes**. The Bi2O3 **electrolyte** was reduced to metal on the **cathode** side at high current densities.
IT **64296-91-9D**, Lanthanum manganese strontium oxide (La0.5MnSr0.5O3), oxygen-deficient **106390-66-3D**, Lanthanum manganese strontium oxide (La0.7MnSr0.3O3), oxygen-deficient
(ceramic, oxygen transport parameters in perovskite, for fuel cell **electrodes**)
RN 64296-91-9 HCAPLUS
CN Lanthanum manganese strontium oxide (LaMn2SrO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	6	17778-80-2
Sr	1	7440-24-6
Mn	2	7439-96-5
La	1	7439-91-0

RN 106390-66-3 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.7MnSr0.3O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.3	7440-24-6
Mn	1	7439-96-5
La	0.7	7439-91-0

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57, **72**
ST oxygen pumping transport oxide **electrolyte**; manganite perovskite **electrode** oxygen transport
IT Fuel-cell **electrolytes**
(ceria and bismuth oxide for, oxygen transport and ionic transference number in)
IT **Electrodes**
(fuel-cell, lanthanum manganite perovskites for, oxygen transport in, measurement of)
IT **64296-91-9D**, Lanthanum manganese strontium oxide (La0.5MnSr0.5O3), oxygen-deficient **106390-66-3D**, Lanthanum manganese strontium oxide (La0.7MnSr0.3O3), oxygen-deficient 107121-72-2D, Iron lanthanum strontium oxide (FeLa0.7Sr0.3O3), oxygen-deficient
(ceramic, oxygen transport parameters in perovskite, for fuel cell **electrodes**)
IT 7440-24-6, Strontium, uses
(**dopant**, bismuth oxide **electrolyte** containing, oxygen transport in, for fuel cell)
IT 7440-70-2, Calcium, uses
(**dopant**, ceria **electrolyte** containing, oxygen transport in, for fuel cell)
IT 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-57-5, Gold, uses
(**electrodes** containing sputtered layer of, oxygen transport in, for fuel cell)
IT 1306-38-3, Cerium oxide (CeO2), uses
(**electrolyte** of calcium-doped, electrochem. oxygen transport in, for fuel cell)
IT 1304-76-3, Bismuth oxide (Bi2O3), uses
(**electrolyte** of strontium-doped, electrochem. oxygen transport in, for fuel cell)
IT 7782-44-7, Oxygen, miscellaneous
(transport of, in solid oxide **electrolyte** and ceramic oxide **electrodes**, for fuel cells)

L31 ANSWER 51 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1993:569130 HCAPLUS Full-text
DOCUMENT NUMBER: 119:169130
TITLE: Activities of rare-earth-containing oxides as **electrodes** for oxide ion conductor

AUTHOR(S): Eguchi, Koichi; Inoue, Takanori; Setoguchi, Toshihiko; Arai, Hiromichi
CORPORATE SOURCE: Grad. Sch. Eng. Sci., Kyushu Univ., Kasuga, 816, Japan
SOURCE: Journal of Alloys and Compounds (**1993**), 193(1-2), 59-61
CODEN: JALCEU; ISSN: 0925-8388
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 16 Oct 1993
AB The substitutional dissoln. of an appropriate **dopant** to CeO2 is effective in controlling ionic and elec. conductivities. The combination of La0.6Sr0.4Co0.98Ni0.02O3 **electrode** /(CeO2)0.8(SmO1.5)0.2 **electrolyte** exhibited high **electrode** polarization conductivity **Anodic** properties were evaluated in relation to an **electrolyte** material and oxide material in an Ni-based cermet **anode**.
IT **108916-21-8**, Lanthanum manganese strontium oxide (La0.6MnSr0.4O3)
(**electrode**, with cobalt cerium oxide **electrolyte**, elec. conductivity in relation to)
RN 108916-21-8 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.6MnSr0.4O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.4	7440-24-6
Mn	1	7439-96-5
La	0.6	7439-91-0

CC 72-2 (**Electrochemistry**)
Section cross-reference(s): **52**, 76
ST rare earth contg oxide **electrode** cond; lanthanum nickel strontium cobaltate **electrode** cond; cerium samarium oxide **electrolyte** cond; nickel cermet based **anode** cond; fuel cell **electrolyte**
IT Fuel-cell **electrolytes**
(rare earth-containing oxides)
IT **Electrodes**
(rare earth-containing oxides,)
IT **Anodes**
(fuel-cell, nickel-base)
IT 1313-99-1, Nickel oxide (NiO), uses
(**anode** from metal oxides with, elec. conductivity of)
IT 111705-95-4, Nickel praseodymium oxide 134883-91-3, Cerium nickel oxide 149319-21-1, Nickel yttrium zirconium oxide 150341-70-1, Cerium nickel samarium oxide
(**anode**, elec. conductivity of)
IT 12060-58-1, Samarium oxide (Sm2O3)
(cerium oxide **electrolyte** with, with cobalt lanthanum nickel strontium oxide **electrode**, elec. conductivity in relation to)
IT 7440-06-4, Platinum, uses
(**electrode**, with cerium calcium oxide **electrolyte**, comparison with lanthanum oxide-containing **electrodes**)
IT 118392-69-1, Cobalt lanthanum nickel strontium oxide (Co0.98La0.6Ni0.02Sr0.4O3)
(**electrode**, with cerium samarium oxide **electrolyte**, elec. conductivity in relation to)

IT **108916-21-8**, Lanthanum manganese strontium oxide (La0.6MnSr0.4O3)
(**electrode**, with cobalt cerium oxide **electrolyte**, elec. conductivity in relation to)
IT 1314-36-9, Yttrium oxide (Y2O3), properties
(**electrolyte** from zirconia stabilized with, with cobalt lanthanum nickel strontium oxide or lanthanum manganese strontium oxide **electrodes**, elec. conductivity in relation to)
IT 1306-38-3, Cerium dioxide, properties
(**electrolyte**, samarium oxide-doped, with cobalt lanthanum nickel strontium oxide **electrode**, elec. conductivity in relation to)
IT 116875-84-4, Cerium samarium oxide (Ce0.8Sm0.2O1.9)
(**electrolyte**, with cobalt lanthanum nickel strontium oxide **electrode**, elec. conductivity in relation to)
IT 116443-69-7, Calcium cerium oxide (Ca0.1Ce0.9O1.9)
(**electrolyte**, with lanthanum oxide-containing **electrodes** and with platinum)
IT 1314-23-4, Zirconia, properties
(**electrolyte**, yttria-stabilized, with cobalt lanthanum strontium nickel oxide or lanthanum manganese strontium oxide **electrodes**, elec. conductivity in relation to)

L31 ANSWER 52 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1993:63283 HCAPLUS Full-text
DOCUMENT NUMBER: 118:63283
TITLE: Manufacture of perovskite-type oxide **cathodes** for fuel cells
INVENTOR(S): Stadelmann, Heinz
PATENT ASSIGNEE(S): ABB Patent GmbH, Germany
SOURCE: Ger. Offen., 4 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 4119498	A1	19921217	DE 1991-4119498 <--	19910613
PRIORITY APPLN. INFO.:			DE 1991-4119498 <--	19910613

ED Entered STN: 16 Feb 1993
AB The **cathodes** are prepared by mixing a screen-printing paste from La1-xMxM1O3 (M = Ca, Sr; M1 = Mn, Ni, Cr, Co), terpineol, a binder, a plasticizer, and a dispersing agent; applying the paste at 30 μm on a sintered **electrolyte** disk; and by heating at .apprx.1400°. The organic additives in addition to terpineol are Ethocel 10, triolein, and di-Bu phthalate. La1-xMxM1O3 is La0.86Sr0.16MnO3.
IT **140884-85-1P**, Lanthanum manganese strontium oxide (La0.84MnSr0.16O3)
(**cathodes**, air, manufacture of, for fuel cells)
RN 140884-85-1 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.84MnSr0.16O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	3	17778-80-2
Sr	0.16	7440-24-6
Mn	1	7439-96-5
La	0.84	7439-91-0

IC ICM H01M008-02
ICS H01M012-06; B41M001-12; B41M001-34
ICA C09D011-02
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57
ST full cell air **cathode**; lanthanum strontium manganate air **cathode**
IT **Cathodes**
(fuel-cell, air, perovskite-type oxide, manufacture of)
IT 12016-86-3P, Cobalt lanthanum oxide (CoLaO3) 12017-94-6P, Chromium lanthanum oxide (CrLaO3) 12031-12-8P, Lanthanum manganese oxide (LaMnO3) 12031-18-4P, Lanthanum nickel oxide (LaNiO3)
(calcium- or strontium-doped, **cathodes**, air, manufacture of, for fuel cells)
IT **140884-85-1P**, Lanthanum manganese strontium oxide (La0.84MnSr0.16O3)
(**cathodes**, air, manufacture of, for fuel cells)
IT 7440-24-6P, Strontium, uses 7440-70-2P, Calcium, uses
(**dopant**, perovskite-type air **cathodes** containing, manufacture of, for fuel cells)
IT 84-74-2, Dibutyl phthalate 122-32-7, Triolein 8000-41-7, Terpineol 9004-57-3, Ethocel 10
(oxide paste containing, perovskite-type, for air **cathodes** for fuel cells)

L31 ANSWER 53 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1993:29039 HCAPLUS Full-text
DOCUMENT NUMBER: 118:29039
TITLE: Nonstoichiometry in perovskite-type oxide calcium cerium manganate (Ca1-xCexMnO3-δ) and its properties in alkaline solution
AUTHOR(S): Esaka, T.; Morimoto, H.; Iwahara, H.
CORPORATE SOURCE: Fac. Eng., Tottori Univ., Koyamacho, 680, Japan
SOURCE: Journal of Applied Electrochemistry (**1992**), 22(9), 821-4
CODEN: JAELBJ; ISSN: 0021-891X
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 24 Jan 1993
AB Nonstoichiometry in high-conductivity perovskite-type oxide Ca1-xCexMnO3-δ was investigated. At room temperature in air, the 3-δ value was determined to be 2.91 for CaMnO3-δ, which meant that 82% of the Mn was tetravalent. Although the 3-δ value increased by increasing the Ce content, i.e. by **doping** of the higher valence cation into the Ca site, the quantity of Mn4+ in the sample oxide essentially decreased with increasing x. The O contents change reversibly with temperature in air. A change in the O content was also observed upon discharging this oxide as the **cathode** material of a **battery** in alkaline solution Surprisingly, the sintered ceramics of this oxide worked as a **cathode** without mixing with a conductive powder such as graphite. Considering the discharge performance, this oxide may be a candidate for the **cathode** material of the alkaline **battery**.
IT **145077-20-9D**, Calcium cerium manganese oxide (Ca0.85-1Ce0-0.15MnO3), oxygen-deficient

(stoichiometry and discharging of, application in **battery** in relation to)

RN 145077-20-9 HCAPLUS

CN Calcium cerium manganese oxide (Ca0.85-1Ce0-0.15MnO3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ca	0.85 - 1	7440-70-2
Ce	0 - 0.15	7440-45-1
Mn	1	7439-96-5

IT **122325-37-5**, Calcium cerium manganese oxide ca0.9ce0.1mno3
(stoichiometry and discharging of, **battery** application in relation to)

RN 122325-37-5 HCAPLUS

CN Calcium cerium manganese oxide (Ca0.9Ce0.1MnO3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ca	0.9	7440-70-2
Ce	0.1	7440-45-1
Mn	1	7439-96-5

CC 72-2 (**Electrochemistry**)
Section cross-reference(s): **52**

ST calcium cerium manganese oxide stoichiometry; discharge electrochem **cathode battery**

IT **Electrolytic** polarization
(of calcium cerium manganese oxide, application in **battery** in relation to)

IT **Electrodes**
(**battery**, calcium cerium manganese oxide, discharging behavior of)

IT **145077-20-9D**, Calcium cerium manganese oxide (Ca0.85-1Ce0-0.15MnO3), oxygen-deficient
(stoichiometry and discharging of, application in **battery** in relation to)

IT **122325-37-5**, Calcium cerium manganese oxide ca0.9ce0.1mno3
(stoichiometry and discharging of, **battery** application in relation to)

L31 ANSWER 54 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1992:618276 HCAPLUS Full-text

DOCUMENT NUMBER: 117:218276

TITLE: Electrostatic dispersion of zirconia-**doped** lanthanum strontium **manganese** oxide (La0.9Sr0.1MnO3) in aqueous systems

AUTHOR(S): Richards, V. L.; Singhal, S. C.

CORPORATE SOURCE: Fuel Cell Technol., Sci. Technol. Cent., Pittsburgh, PA, 15235, USA

SOURCE: Journal of Materials Science Letters (**1992**), 11(17), 1193-6
CODEN: JMSLD5; ISSN: 0261-8028

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 28 Nov 1992
AB The effects of CO2 on wet and dry storage of La0.9Sr0.1MnO3 + 10 weight% ZrO2 powders were investigated and the use of a typical anionic surfactant as a control measure was evaluated. The results showed that CO2 had the effect of decreasing the isoelec. point during dry storage. Use of anionic polyelectrolyte offers control of the zeta potential in slurries despite isoelec. point changes during powder storage.
IT **110781-51-6**, Lanthanum strontium manganese oxide (La0.9Sr0.1MnO3)
(zirconia-doped, storage of, wet and dry, isoelec. point change in, carbon dioxide effect on)
RN 110781-51-6 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.9MnSr0.1O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.1	7440-24-6
Mn	1	7439-96-5
La	0.9	7439-91-0

CC 57-2 (Ceramics)
Section cross-reference(s): **52, 72**
IT 9003-03-6, Darvan 821A
(in lanthanum strontium manganate slurries with zirconia **dopant**, for zeta potential control)
IT **110781-51-6**, Lanthanum strontium manganese oxide (La0.9Sr0.1MnO3)
(zirconia-doped, storage of, wet and dry, isoelec. point change in, carbon dioxide effect on)

L31 ANSWER 55 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1992:534441 HCAPLUS Full-text
DOCUMENT NUMBER: 117:134441
TITLE: Electrical properties of ceria-based oxides and their application to solid oxide fuel cells
AUTHOR(S): Eguchi, K.; Setoguchi, T.; Inoue, T.; Arai, H.
CORPORATE SOURCE: Grad. Sch. Eng. Sci., Kyushu Univ., Kasuga, 816, Japan
SOURCE: Solid State Ionics (**1992**), 52(1-3), 165-72
CODEN: SSIOD3; ISSN: 0167-2738
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 04 Oct 1992
AB The ionic conductivity of CeO2-alkaline earth and -rare-earth oxide systems was investigated in relation to structure, elec. conductivity, and reducibility. Sm2O3- and Gd oxide-doped CeO2 samples exhibited the highest elec. conductivity in CeO2-based oxides because of the close ionic radii of Sm3+ and Gd3+ to that of Ce4+. The ionic conductivity of Sm2O3-doped CeO2 was also measured by an a.c. 4-probe method with electron blocking **electrodes**. A solid oxide fuel cell with a Sm2O3-doped CeO2 **electrolyte** produced high elec. power, because of its highest O ionic conductivity The reduction of CeO2 **electrolyte** at the fuel side could be suppressed by a coating of stabilized ZrO2 thin film on the CeO2 surface. The **anodic** overvoltage of the doped CeO2/ **anode** interface was very small.
IT **108916-21-8**, Lanthanum manganese strontium oxide (La0.6MnSr0.4O3)
(**cathodes**, in fuel cell)

RN 108916-21-8 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.6MnSr0.4O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.4	7440-24-6
Mn	1	7439-96-5
La	0.6	7439-91-0

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57, 76
ST fuel cell ceria based oxide; **electrolyte** cation doped ceria fuel cell
IT Fuel-cell **electrolytes**
(ceria-based oxides, elec. properties of)
IT Crystal structure
(of ceria-based oxides, **dopant** concentration and radius effect on)
IT **108916-21-8**, Lanthanum manganese strontium oxide (La0.6MnSr0.4O3)
(**cathodes**, in fuel cell)
IT 12060-58-1, Samarium oxide (Sm2O3) 12064-62-9, Gadolinium oxide (Gd2O3)
(ionic conductivity of cerium oxide containing, for fuel cell **electrolyte**)
IT 1306-38-3, Cerium oxide (CeO2), properties
(ionic conductivity of metal oxide containing, for fuel cell **electrolyte**)
IT 7440-02-0, Nickel, uses
(yttria-stabilized zirconia with, fuel cell **anodes**)
IT 1314-23-4, Zirconia, uses
(yttria-stabilized, samarium-doped ceria **electrolyte** coated with, fuel cell with)
IT 1314-36-9, Yttria, uses
(zirconia stabilized with, samarium-doped ceria **electrolyte** coated with, fuel cell with)

L31 ANSWER 56 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1992:238732 HCAPLUS Full-text
DOCUMENT NUMBER: 116:238732
TITLE: Chemical thermodynamic compatibility of solid oxide fuel cell materials
AUTHOR(S): Yokokawa, Harumi; Sakai, Natsuko; Kawada, Tatsuya; Dokiya, Masayuki
CORPORATE SOURCE: Tsukuba Res. Cent., Natl. Chem. Lab. Ind., Tsukuba, 305, Japan
SOURCE: Comm. Eur. Communities, [Rep.] EUR (**1991**), EUR 13564, Proc. Int. Symp. Solid Oxide Fuel Cells, 2nd, 1991, 663-70
CODEN: CECED9; ISSN: 0303-755X
DOCUMENT TYPE: Report
LANGUAGE: English
ED Entered STN: 13 Jun 1992
AB A thermodn. anal. was carried out of Y2O3-stabilized ZrO2 materials for fuel cell components. Phase diagram calcns. were made using empirical relations between parameters and ionic radii of **dopants**; **Mn** dissoln. and zirconate formation at the Y2O3-stabilized ZrO2 and manganite electrode were clarified

in terms of A-site occupancy in the perovskite structure. Reactions of LaCa chromite separator with LaSr manganite air electrode or with Y2O3-ZrO2 were investigated by chemical equilibrium calcns. Calculated chemical potentials of binary oxides were used to explain driving forces for kinetic phenomena, particularly migration and reactions in co-firing processes. The chromite layer should contain CaO to enhance sinterability, but CaO tends to migrate into other layers and as a result, the chromite layer is not densified.

IT **59707-46-9**, Lanthanum manganese strontium oxide
(fuel-cell material, chemical thermodn. compatibility of)

RN 59707-46-9 HCAPLUS

CN Lanthanum manganese strontium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Sr	x	7440-24-6
Mn	x	7439-96-5
La	x	7439-91-0

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 68, 69

IT 57679-28-4, Calcium chromium lanthanum oxide **59707-46-9**, Lanthanum manganese strontium oxide
(fuel-cell material, chemical thermodn. compatibility of)

L31 ANSWER 57 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1992:197603 HCAPLUS Full-text

DOCUMENT NUMBER: 116:197603

TITLE: Defect chemistry and properties of yttrium calcium manganese oxide Y1-xCaxMnO3

AUTHOR(S): Nasrallah, M. M.; Anderson, H. U.; Stevenson, J. W.

CORPORATE SOURCE: Dep. Ceram. Eng., Univ. Missouri, Rolla, MO, 65401, USA

SOURCE: Comm. Eur. Communities, [Rep.] EUR (**1991**), EUR 13564, Proc. Int. Symp. Solid Oxide Fuel Cells, 2nd, 1991, 545-52
CODEN: CECED9; ISSN: 0303-755X

DOCUMENT TYPE: Report

LANGUAGE: English

ED Entered STN: 16 May 1992

AB Compns. in the Ca-doped YMnO3 system were investigated for use as **cathodes** in solid oxide fuel cells. A miscibility gap wa detected for Ca contents <25%. Complete miscibility, associated with stabilization of the perovskite structure, was identified for higher Ca containing compns. The stability regime and O nonstoichiometry were determined for the 40-60% Ca containing compns. with thermogravimetric techniques. Elec. conductivity data confirm that a thermally activated small polaron mechanism is operative. The effect of **dopant**, temperature, and O activity on TGA and conductivity values are interpreted in terms of a postulated defect structure model. Thermal expansion coefficient (TEC) data show strong dependence on Ca content. Contrary to Sr-doped LaMnO3, the YMnO3 system can be made to match the TEC of Y2O3-stabilized ZrO2 **electrolyte**.

IT **131913-39-8**, Calcium manganese yttrium oxide (Ca0.3MnY0.7O3)
134775-79-4, Calcium manganese yttrium oxide (Ca0.5MnY0.5O3)
141050-58-0, Calcium manganese yttrium oxide (Ca0.4MnY0.6O3)
141067-73-4, Calcium manganese yttrium oxide
(elec. and thermal properties of, for fuel cell **cathodes**)

RN 131913-39-8 HCAPLUS
CN Calcium manganese yttrium oxide (Ca0.3MnY0.7O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ca	0.3	7440-70-2
Y	0.7	7440-65-5
Mn	1	7439-96-5

RN 134775-79-4 HCAPLUS
CN Calcium manganese yttrium oxide (Ca0.5MnY0.5O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ca	0.5	7440-70-2
Y	0.5	7440-65-5
Mn	1	7439-96-5

RN 141050-58-0 HCAPLUS
CN Calcium manganese yttrium oxide (Ca0.4MnY0.6O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ca	0.4	7440-70-2
Y	0.6	7440-65-5
Mn	1	7439-96-5

RN 141067-73-4 HCAPLUS
CN Calcium manganese yttrium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Ca	x	7440-70-2
Y	x	7440-65-5
Mn	x	7439-96-5

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57, 76
ST yttrium calcium manganese oxide **cathode**
IT **Cathodes**
(fuel-cell, calcium manganese yttrium oxide for, properties of)
IT **131913-39-8**, Calcium manganese yttrium oxide (Ca0.3MnY0.7O3)
134775-79-4, Calcium manganese yttrium oxide (Ca0.5MnY0.5O3)
141050-58-0, Calcium manganese yttrium oxide (Ca0.4MnY0.6O3)
141067-73-4, Calcium manganese yttrium oxide
(elec. and thermal properties of, for fuel cell **cathodes**)

L31 ANSWER 58 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1991:167902 HCAPLUS Full-text
DOCUMENT NUMBER: 114:167902
TITLE: Solid-**electrolyte** fuel cells

INVENTOR(S): Iwahara, Hironari
PATENT ASSIGNEE(S): Tonen Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 03001453	A	19910108	JP 1989-134535 <--	19890530
PRIORITY APPLN. INFO.:			JP 1989-134535 <--	19890530

ED Entered STN: 03 May 1991
AB The fuel cells use BaCeO3-based **electrolytes** and Ni-containing **anodes**. The fuel cells preferably use Ba-doped LaMnO3 **cathodes**. These **electrodes** can be used in place of Pt **electrodes**.
IT **127610-27-9D**, Barium lanthanum manganese oxide (Ba0.4La0.6MnO3), oxygen-deficient
(**cathodes**, for fuel cells with barium cerate-based solid **electrolytes**)
RN 127610-27-9 HCAPLUS
CN Barium lanthanum manganese oxide (Ba0.4La0.6MnO3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ba	0.4	7440-39-3
Mn	1	7439-96-5
La	0.6	7439-91-0

IC ICM H01M008-12
ICS H01M004-86
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST fuel cell barium cerate **electrolyte**; nickel **anode** solid fuel cell; lanthanum manganete **cathode** fuel cell; barium **doping** lanthanum manganete **cathode**
IT **Cathodes**
(fuel-cell, barium-**doped** lanthanum **manganese** oxide)
IT **Anodes**
(fuel-cell, nickel)
IT Fuel cells
(solid-**electrolyte**, barium cerium neodymium oxide for)
IT 7440-02-0, Nickel, uses and miscellaneous
(**anodes**, for fuel cells with barium cerate-based solid **electrolytes**)
IT **127610-27-9D**, Barium lanthanum manganese oxide (Ba0.4La0.6MnO3), oxygen-deficient
(**cathodes**, for fuel cells with barium cerate-based solid **electrolytes**)
IT 112235-03-7D, Barium cerium neodymium oxide (BaCe0.9Nd0.1O3), oxygen-deficient
(**electrolyte**, for fuel cells)

L31 ANSWER 59 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1990:500819 HCAPLUS Full-text
DOCUMENT NUMBER: 113:100819
TITLE: A new cathode material (La, Sr)1-z (Mn1-yCr6)O3 (O ≤ y ≤ 0.2) for SOFC
AUTHOR(S): Mori, Masashi; Sakai, Natsuko; Kawada, Tatsuya; Yokokawa, Harumi; Dokiya, Masayuki
CORPORATE SOURCE: Cent. Res. Inst. Electr. Power Ind., Yokosuka, 240-01, Japan
SOURCE: Denki Kagaku oyobi Kogyo Butsuri Kagaku (**1990**), 58(6), 528-32
CODEN: DKOKAZ; ISSN: 0366-9297
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 16 Sep 1990

AB A new air electrode for SOFC (solid oxide fuel cell) was prepared by **doping** Cr into La(Mn,Cr) perovskite oxides to form (La,Sr)1-z(Mn1-yCryO3 (0 < y ≤ 0.2). Shrinkage of the mixed oxide was minimal during sintering and the oxide did not react with Y2O3-stabilized ZrO2 in tests at 1773 K for 5 h. The elec. conductivity of the new oxide was 47.3 S/cm for (La0.92Sr0.08)(Mn0.88Cr0.12)O3 compared with 61.9 S/cm for (La0.92Sr0.08)MnO3. The new oxide electrode had a smaller change in overvoltage at 0.13-0.18 V and c.d. 1.0 A/cm2 at 1673 K, compared to 0.09-0.25 V for the undoped oxide. The lattice parameters of the new oxides as a function of Cr content and the shrinkage with Cr or Sr content are given.

IT **128932-09-2**, Lanthanum manganese strontium oxide (La0.84MnSr0.07O3) **128932-11-6**, Lanthanum manganese strontium oxide (La0.92MnSr0.08O3)
(cathode active mass, for solid oxide fuel cells)

RN 128932-09-2 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.84MnSr0.07O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.07	7440-24-6
Mn	1	7439-96-5
La	0.84	7439-91-0

RN 128932-11-6 HCAPLUS
CN Lanthanum manganese strontium oxide (La0.92MnSr0.08O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	0.08	7440-24-6
Mn	1	7439-96-5
La	0.92	7439-91-0

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76

IT Cathodes
(fuel-cell, chromium-**doped** lanthanum **manganese** strontium oxide, for solid fuel cells)

IT **128932-09-2**, Lanthanum manganese strontium oxide (La0.84MnSr0.07O3) 128932-10-5 **128932-11-6**, Lanthanum

manganese strontium oxide (La0.92MnSr0.08O3)
(cathode active mass, for solid oxide fuel cells)
IT 1314-11-0
(cathodes, fuel-cell, chromium-**doped** lanthanum **manganese** strontium oxide, for solid fuel cells)
IT 7440-47-3, Chromium, uses and miscellaneous
(lanthanum **manganese** strontium oxide **doped** with, cathode active material, for solid oxide fuel cells)

L31 ANSWER 60 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1988:599850 HCAPLUS Full-text
DOCUMENT NUMBER: 109:199850
TITLE: Electrochemical preparation and behavior of mixed oxide of cobalt, nickel, and manganese
AUTHOR(S): Dhawan, Sundeep Kumar; Trivedi, Dinesh Chandra
CORPORATE SOURCE: Cent. Electrochem. Res. Inst., Karaikudi, 623 006, India
SOURCE: Bulletin of Electrochemistry (**1988**), 4(8), 743-4
CODEN: BUELE6; ISSN: 0256-1654
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 25 Nov 1988
AB An attempt was made to prepare the mixed Co oxide by codeposition of Ni and Mn oxides. It was observed that the inclusion of Ni or Mn enhances the life of the Co oxide anode and electrocatalytic properties are improved considerably.
IT **68136-21-0P**, Manganese nickel oxide
(electrosynthesis and electrocatalytic properties of)
RN 68136-21-0 HCAPLUS
CN Manganese nickel oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Ni	x	7440-02-0
Mn	x	7439-96-5

CC 72-4 (**Electrochemistry**)
IT Anodes
(cobalt and **manganese** oxides, nickel **doping** effect on catalytic properties of)
IT Catalysts and Catalysis
(electrochem., cobalt and **manganese** oxides, nickel **doping** effect on)
IT 7440-02-0, Nickel, uses and miscellaneous
(**doping** with, of cobalt and manganese oxides, catalytic properties in relation to)
IT 11104-61-3P, Cobalt oxide 11129-60-5P, Manganese oxide
(electrosynthesis and catalytic properties of, nickel **doping** in relation to)
IT 12737-30-3P, Cobalt nickel oxide **68136-21-0P**, Manganese nickel oxide
(electrosynthesis and electrocatalytic properties of)
IT 12016-80-7P 12017-00-4P
(synthesis and electrocatalytic properties of, nickel **doping** effect on)

L31 ANSWER 61 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1988:476531 HCAPLUS Full-text

DOCUMENT NUMBER: 109:76531
TITLE: Corrosion of metal oxide ceramics in molten lithium-potassium carbonates
AUTHOR(S): Lessing, P. A.; Yang, Z. Z.; Miller, G. R.; Yamada, H.
CORPORATE SOURCE: Ceramatec, Inc., Salt Lake City, UT, 84115, USA
SOURCE: Journal of the Electrochemical Society (**1988**), 135(5), 1049-57
CODEN: JESOAN; ISSN: 0013-4651
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 02 Sep 1988
AB A corrosion testing program was used to survey metal oxides potentially useful in a molten carbonate fuel cell environment. Tests included immersion of polycryst. sintered pellets, powdered samples immersed in molten carbonate under 10 atm of simulated **cathode** gas, and immersion gravimetric tests using powder samples under 1 atm of simulated **cathode** gas. All tests were done at 700° using (0.62 Li-0.38 K)2CO3 under static (no elec. potential) conditions. Li2TiO3, Li2ZrO3, PbZrO3, and ZrTiO4 had a high corrosion resistance at large and small carbonate to ceramic ratios and under 1 and 10 atm of **cathode** gas. CaTiO3 + M+5 (M = metals) **dopants**, SrTiO3 + M+5 **dopants**, CaZrO3, and MgO.ZrO2 were not stable at 1 atm pressure for large (150:1) carbonate to ceramic ratios, but were more stable at 10 atm pressure and lower carbonate to ceramic ratios (10:1, 1:1). The effects were explained using solubility and carbonate decomposition thermodn.
IT **12032-74-5**, Manganese titanium oxide (MnTiO3)
(ceramic, corrosion of, in molten carbonates, fuel cell application in relation to)
RN 12032-74-5 HCAPLUS
CN Manganese titanium oxide (MnTiO3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ti	1	7440-32-6
Mn	1	7439-96-5

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57
IT 12009-21-1, Barium zirconium oxide (BaZrO3) 12009-63-1, Barium titanium oxide (Ba2TiO4) 12013-47-7, Calcium zirconium oxide (CaZrO3) 12014-14-1, Cadmium titanium oxide (CdTiO3) 12017-01-5, Cobalt titanium oxide (CoTiO3) 12017-38-8, Cobalt titanium oxide (Co2TiO4) 12022-46-7, Iron lithium oxide (LiFeO2) 12023-70-0 12031-82-2, Lithium titanium oxide (Li2TiO3) 12031-83-3, Lithium zirconium oxide (Li2ZrO3) 12032-30-3, Magnesium titanium oxide (MgTiO3) **12032-74-5**, Manganese titanium oxide (MnTiO3) 12036-39-4, Strontium zirconium oxide (SrZrO3) 12036-70-3 12047-27-7, Barium titanium oxide (BaTiO3), reactions 12049-50-2, Calcium titanium oxide (CaTiO3) 12060-01-4, Lead zirconium oxide (PbZrO3) 12060-59-2, Strontium titanium oxide (SrTiO3) 12232-23-4
(ceramic, corrosion of, in molten carbonates, fuel cell application in relation to)
IT 554-13-2, Lithium carbonate 584-08-7, Potassium carbonate
(**electrolytes** containing molten, metal oxide ceramic corrosion in, fuel cell application in relation to)

L31 ANSWER 62 OF 62 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1979:595910 HCAPLUS Full-text
DOCUMENT NUMBER: 91:195910
TITLE: Platinum-substitute materials as electrocatalysts for oxygen reduction
AUTHOR(S): Cathey, W. N.; Nicks, L. J.; Bauer, D. J.
CORPORATE SOURCE: Reno Metall. Res. Cent., Bur. Mines, Reno, NV, USA
SOURCE: U. S., Bur. Mines, Rep. Invest. (**1979**), RI 8341, 17 pp.
CODEN: XBMIA6; ISSN: 0096-1922
DOCUMENT TYPE: Report
LANGUAGE: English
ED Entered STN: 12 May 1984
AB Many materials including carbides, silicides, phosphides, borides, nitrides, oxides, and metals were studied as potential fuel-cell catalysts for electroredn. of O in a N H2SO4 **electrolyte** to assess the potential of abundant, low-cost materials as substitutes for Pt or to increase the catalytic efficiency of Pt. Several compds. were rejected because of their reaction in the corrosive environment of the O **electrode**. The activity of carbides such as WC could be improved by **doping** with Pt-group metals, by varying stoichiometry, or by sputtering on a Pt layer. While no catalysts were found with activity as high as Pt, some compds. deserve further investigation.
IT **12360-69-9**
(catalysts containing, fuel-cell, oxygen reduction of)
RN 12360-69-9 HCAPLUS
CN Cerium manganese oxide (CeMnO3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ce	1	7440-45-1
Mn	1	7439-96-5

IT **12032-75-6**
(catalysts, fuel-cell, oxygen reduction at)
RN 12032-75-6 HCAPLUS
CN Manganese yttrium oxide (MnYO3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Y	1	7440-65-5
Mn	1	7439-96-5

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57, 67
ST fuel cell oxygen **electrode**; carbide fuel cell catalyst; silicide fuel cell catalyst; phosphide fuel cell catalyst; boride fuel cell catalyst; nitride fuel cell catalyst; oxide fuel cell catalyst; platinum fuel cell catalyst
IT **Cathodes**
(fuel-cell, oxygen catalytic)
IT 1306-38-3, uses and miscellaneous 1312-81-8 1313-96-8 12006-78-9 12033-72-6 12053-27-9 12058-38-7 **12360-69-9** 24094-93-7
(catalysts containing, fuel-cell, oxygen reduction of)
IT 1309-48-4, uses and miscellaneous 1310-43-6 1312-81-8 1313-99-1, uses and miscellaneous 1317-34-6 1317-36-8, uses and miscellaneous

1344-43-0, uses and miscellaneous 7440-06-4, uses and miscellaneous
7440-18-8, uses and miscellaneous 7440-25-7, uses and miscellaneous
7440-57-5, uses and miscellaneous 12006-79-0 12006-84-7
12006-98-3 12007-00-0 12007-37-3 12008-02-5 12012-35-0
12017-94-6 12018-36-9 12019-52-2 12025-53-5 12031-12-8
12032-75-6 12032-78-9 12033-62-4 12034-66-1 12035-74-4
12036-10-1 12037-63-7 12037-65-9 12039-13-3 12039-15-5
12039-83-7 12039-87-1 12039-90-6 12045-15-7 12052-86-7
12053-05-3 12059-19-7 12066-53-4 12069-40-8 12069-94-2
12070-06-3 12070-08-5 12070-12-1 12070-14-3 12134-02-0
12136-78-6 12142-88-0 12347-11-4 12361-46-5 12361-86-3
12378-57-3 12535-30-7 12600-91-8 20033-08-3 24621-21-4
24646-85-3 25583-20-4 25658-42-8 26342-61-0 29888-22-0
37296-86-9
(catalysts, fuel-cell, oxygen reduction at)

IT 7782-44-7, reactions
(reduction of, on fuel-cell catalytic **electrodes**)

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=> d his nofile

     (FILE 'HOME' ENTERED AT 14:56:58 ON 13 AUG 2007)

     FILE 'HCAPLUS' ENTERED AT 14:57:16 ON 13 AUG 2007
L1             1 SEA ABB=ON  PLU=ON  US20030215712/PN
                 SEL RN

     FILE 'REGISTRY' ENTERED AT 14:57:36 ON 13 AUG 2007
L2           113 SEA ABB=ON  PLU=ON  (1310-58-3/BI OR 1313-13-9/BI OR
                 378248-51-2/BI OR 378248-52-3/BI OR 378248-53-4/BI OR
                 378248-54-5/BI OR 378248-55-6/BI OR 378248-56-7/BI OR
                 378248-57-8/BI OR 378248-58-9/BI OR 378248-59-0/BI OR
                 378248-60-3/BI OR 378248-61-4/BI OR 378248-62-5/BI OR
                 378248-63-6/BI OR 378248-64-7/BI OR 378248-65-8/BI OR
                 378248-66-9/BI OR 378248-67-0/BI OR 378248-68-1/BI OR
                 378248-69-2/BI OR 378248-70-5/BI OR 378248-71-6/BI OR
                 378248-72-7/BI OR 378248-73-8/BI OR 378248-74-9/BI OR
                 378248-75-0/BI OR 378248-76-1/BI OR 378248-77-2/BI OR
                 378248-78-3/BI OR 378248-79-4/BI OR 378248-80-7/BI OR
                 378248-81-8/BI OR 378248-82-9/BI OR 378248-83-0/BI OR
                 378248-84-1/BI OR 378248-85-2/BI OR 378248-86-3/BI OR
                 378248-87-4/BI OR 378248-88-5/BI OR 378248-89-6/BI OR
                 378248-90-9/BI OR 378248-91-0/BI OR 378248-92-1/BI OR
                 378248-93-2/BI OR 378248-94-3/BI OR 378248-95-4/BI OR
                 378248-96-5/BI OR 378248-97-6/BI OR 378248-98-7/BI OR
                 378248-99-8/BI OR 378249-00-4/BI OR 378249-01-5/BI OR
                 378249-02-6/BI OR 378249-03-7/BI OR 378249-04-8/BI OR
                 378249-05-9/BI OR 378249-06-0/BI OR 378249-07-1/BI OR
                 378249-08-2/BI OR 378249-09-3/BI OR 378249-10-6/BI OR
                 378249-11-7/BI OR 378249-12-8/BI OR 378249-13-9/BI OR
                 378249-14-0/BI OR 378249-15-1/BI OR 378249-16-2/BI OR
                 378249-17-3/BI OR 378249-18-4/BI OR 378249-19-5/BI OR
                 378249-20-8/BI OR 378249-21-9/BI OR 378249-22-0/BI OR
                 378249-23-1/BI OR 378249-24-2/BI OR 378249-25-3/BI OR
                 378249-26-4/BI OR 378249-27-5/BI OR 378249-28-6/BI OR
                 378249-29-7/BI OR 378249-30-0/BI OR 378249-31-1/BI OR
                 378249-32-2/BI OR 378249-33-3/BI OR 378249-34-4/BI OR
                 378249-35-5/BI OR 378249-36-6/BI OR 378249-37-7/BI OR
                 378249-38-8/BI OR 378249-39-9/BI OR 378249-40-2/BI OR
                 378249-41-3/BI OR 378249-42-4/BI OR 378249-43-5/BI OR
                 378249-44-6/BI OR 378249-45-7/BI OR 378249-46-8/BI OR
                 378249-47-9/BI OR 378249-
L3         13829 SEA ABB=ON  PLU=ON  (MN(L)(B OR MG OR AL OR SI OR P OR SC
                 OR TI OR V OR CR OR FE OR CO OR ZN OR GA OR SR OR Y OR ZR
                 OR NB OR RU OR RH OR PD OR AG OR NI OR CU OR IN OR SN OR
                 SB OR BA OR CE OR HF OR TA OR RE OR OS OR IR OR PT OR  AU
                 OR BI)(L)O)/ELS(L)3-4/ELC.SUB
L4            93 SEA ABB=ON  PLU=ON  L3 AND L2

     FILE 'HCAPLUS' ENTERED AT 15:05:03 ON 13 AUG 2007
L5             1 SEA ABB=ON  PLU=ON  L4
L6         33444 SEA ABB=ON  PLU=ON  L3
                 E  DOPANTS/CT
L7         13914 SEA ABB=ON  PLU=ON  DOPANTS+PFT,NT,OLD,NEW/CT
                 E  DOPING/CT
L8         24584 SEA ABB=ON  PLU=ON  DOPING+PFT,NT,OLD,NEW/CT
L9           476 SEA ABB=ON  PLU=ON  L6 AND (L7 OR L8)
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L10          1934 SEA ABB=ON  PLU=ON  L6 AND ((L7 OR L8) OR DOPING# OR
                  DOPANT#)
                  E  BATTERY ELECTRODES/CT
L11         35777 SEA ABB=ON  PLU=ON  "BATTERY ELECTRODES"+PFT,NT,OLD,NEW/CT

L12           206 SEA ABB=ON  PLU=ON  L10 AND L11
L13         11218 SEA ABB=ON  PLU=ON  (MANGANESE OR MN)(2A)DOP?
L14            85 SEA ABB=ON  PLU=ON  L13 AND L12
L15            85 SEA ABB=ON  PLU=ON  L14 AND ELECTROCHEM?/SC,SX
L16            34 SEA ABB=ON  PLU=ON  L15 AND (1840-2001)/PRY,AY,PY

     FILE 'REGISTRY' ENTERED AT 15:11:57 ON 13 AUG 2007
L17         11085 SEA ABB=ON  PLU=ON  L3 NOT 1-100/LI

     FILE 'HCAPLUS' ENTERED AT 15:12:40 ON 13 AUG 2007
L18         31211 SEA ABB=ON  PLU=ON  L17
L19          1690 SEA ABB=ON  PLU=ON  L18 AND ((L7 OR L8) OR  DOPING# OR
                  DOPANT#)
L20            26 SEA ABB=ON  PLU=ON  L19 AND L11
L21           510 SEA ABB=ON  PLU=ON  L19 AND L13
L22            36 SEA ABB=ON  PLU=ON  L21 AND ELECTROCHEM?/SC,SX
L23            54 SEA ABB=ON  PLU=ON  L20 OR L22
L24            29 SEA ABB=ON  PLU=ON  L23 AND (1840-2001)/PRY,AY,PY
L25           158 SEA ABB=ON  PLU=ON  L19 AND ELECTROCHEM?/SC,SX
L26            94 SEA ABB=ON  PLU=ON  L25 AND (1840-2001)/PRY,AY,PY
                  E  ELECTRODEPOSITION/CT
L27         64449 SEA ABB=ON  PLU=ON  ELECTRODEPOSITION+PFT,NT,OLD,NEW/CT
L28            2  SEA ABB=ON  PLU=ON  L26 AND L27
L29           81  SEA ABB=ON  PLU=ON  L26 AND (BATTER? OR ELECTROD? OR ANOD?
                  OR CATHOD?)
L30           44  SEA ABB=ON  PLU=ON  L29 AND ELECTROLYT?
L31           62  SEA ABB=ON  PLU=ON  L24 OR L30
L32            1  SEA ABB=ON  PLU=ON  L31 AND
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